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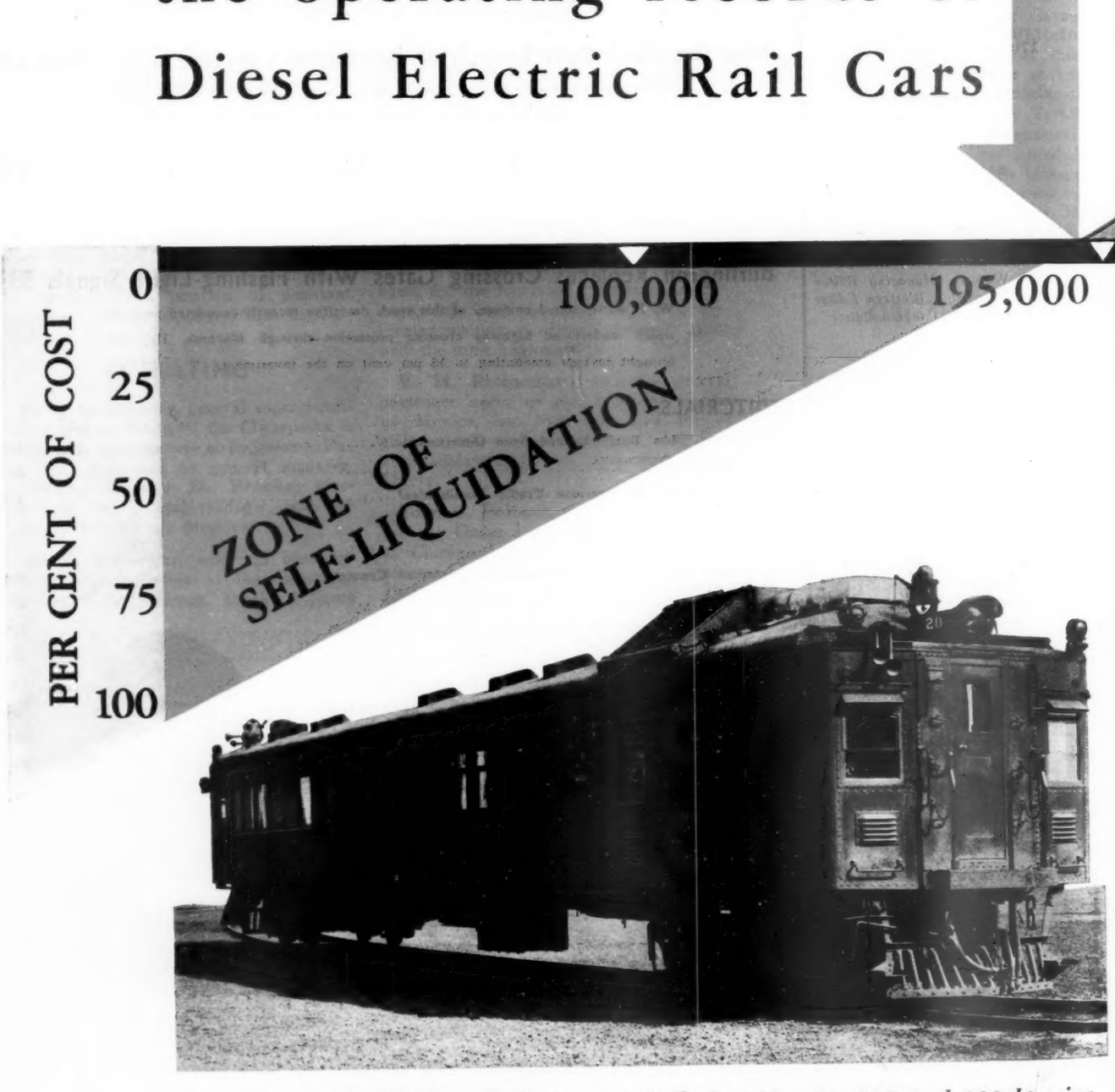
In This Issue

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

SELF·LIQUIDATED AT 195,000 MILES

—a lesson in economy from the operating records of Diesel Electric Rail Cars



Westinghouse Diesel Electric Rail Cars are built in 265, 400, 530 and 800-hp. sizes.

RAILWAY AGE

The "New Deal" Needed from Government

While not a political newspaper, the *Railway Age* welcomes the advent today of the Democratic party to full control of the policies of the federal government. With full control goes full responsibility. Some of the problems of government have become some of the most vital problems of business. Intelligent people will now know to what party to give credit if the government adopts policies that help business, and blame if it adopts policies that hurt business. Unless business improves, it is as certain as any future thing can be that a Republican Congress will be elected in 1934, and that the Republican party will recover full control of the government in 1936. Therefore, President Roosevelt and the Democratic leaders in Congress must know that the best politics they can play will be to favor measures that will help business; and whether such measures will be adopted will depend mainly upon whether the Democratic leaders have enough economic statesmanship to formulate them and to get Congress to accept them.

How Government Has Hindered Self-Help

This paper believes the purely economic problems that must be solved to revive business are plainer and simpler than most persons think. The depression was caused by unsound policies in both government and business which prevailed for some years, and constantly became more unsound until the collapse of the stock market in 1929. The prolongation and deepening of the depression have been due much more to government than to business policies, and such improvement in business as has occurred since last summer has been accomplished mainly by the efforts of business men and the people generally, in spite of government policies. The National Transportation committee, in its recent report, urged more self-help by the railways. That is sound doctrine for the railways and everybody else; but to afford everybody full opportunity to practice it effectively there must be radical changes in government policies.

When the depression began the railways and everybody else would immediately have resorted more to self-help if there had not been so much government interference. That interference in the railroad and other industries included exertion of the influence of the national administration to increase capital expenditures and maintain wages. The railways, in their financial extremity, have accepted large loans from the government, but most of these loans would not have been needed, as bad as business has been, if the railways had been entirely free from the beginning of the depression, to practice self-help and reduce their expenditures, including wages, in accordance with the judgments of their own managements. The government also interfered with the natural course of developments by increasing import tariffs, and by increasing taxes to pay farmers for increasing surpluses, to give bonuses to veterans that the nation could not afford, and to continue and increase expenditures upon public works that were not needed. However good may have been the intentions of those who inspired these policies, and regardless of who endorsed them, they did not stimulate business as intended; they delayed needed economic readjustments; they increased the taxes of persons who could not afford to pay them with the result of reducing their expenditures for other purposes; and, in spite of these government policies, and, in our opinion, largely because of them, the nation, after more than three years of the most profound depression in all history, is still struggling to get out of it.

Recent Experience Has Taught Nothing New

The experience of the last decade, including years of so-called prosperity and very real adversity, does not teach any important new lessons. It merely teaches the same lessons that experience had taught in this and every other civilized country ever since the industrial era began. Increased wealth and incomes are produced by the exertions of the people themselves, not by paternalism in government. The people's exertions of both mind and body are stimulated by the free operation of economic laws which reward the wise and pun-

ish the foolish. In view of all the recent evidence of breaches of faith, and even violations of criminal laws, in high as well as in low places in business, it may well be added that sound practices in business are stimulated by the enforcement of statutes for the prevention and punishment of fraud. When government interferes in business by using its regulating and taxing power to aid some industries to compete with others, to help some classes at the expense of others, and to cause or compel men conducting private business to manage it contrary to their own judgment, it invariably, in the long run, does more harm than good. It may, by such means, temporarily stimulate business or arrest its decline, but the final result always is less wealth and smaller incomes for every class than if all were left free to get rewards in proportion to their intelligence and efforts and suffer losses in proportion to their mistakes.

What Government Can Do

What, then, can the new administration and Congress do to restore business? They can settle the question of inter-governmental debts regardless of every consideration except the economic interest of the American people. Why bother about what or why foreigners agreed to pay when the only question of importance to the American people is what it will be to the selfish interest of the American people to have them pay? The new administration and Congress can help business by promptly beginning the withdrawal of subsidies given to favored industries and classes upon the pretense that they help business, whereas, in fact, they hurt private business generally and reduce employment by increasing the taxes of private business and individuals. Why tax business and individuals to raise money to give employment in road building, for example, when the nation already has spent far more on highways than it can afford, and much more greatly needs to have money spent in employing men in private business? The new administration and Congress can help business by reducing the number of government employees and their wages, thereby making it possible for private business and private individuals to retain more of their own earnings to use for their own purposes.

The Government and the Railroads

As to the railroads, the new administration and Congress can help in the solution of their problem by applying comparable federal regulation to all carriers by railway, highway and waterway. The effects of past and present regulation of railways are cited as an argument against increased regulation of other carriers. The *Railway Age* believes, as it always has, that, whatever kind of carrier performs it, transportation should be regulated to prevent unfair discriminations and to promote public safety, and that comparable regulation of all carriers should be established by both reducing railway regulation and increasing the regulation of other carriers. But it should be emphasized that the question as to how much regulation there should be has nothing to do with the question of whether there should or should not be subsidization of any agency of transportation which competes with another domestic agency of transportation. The doctrine of complete self-support should be applied to all carriers, both because the taxpayers cannot afford to continue to pay a large part of the costs of providing some kinds of transportation, and because the resulting diversion of traffic from the railways is unfair to them and makes higher than otherwise would be necessary the rates they must be allowed to charge on most of their remaining traffic. As long as carriers by inland waterways are not required to pay tolls, commercial carriers on the highways are not required to pay adequate rentals, and carriers by air derive a large part of their revenues from postal subsidies, the transportation problem will be due to government misuse of funds derived from excessive taxation as well as to unequal and unfair regulation.

Release the People's Energies

It is time to revive the old fashioned policy of having the government interfere as little as possible with business; of having it restrict the revenues collected from the people to the amount required for the ordinary functions of government; of having government give aid only to the destitute, and not to those who have got into economic trouble through their own mistakes or who seek its help in competing with more efficient business rivals; of leaving business men, farmers and working men to conduct their own affairs and make their own livings as best they can. What government should do is, not to try to tell the people what to do and tax them to death to carry out the theories of politicians and bureaucrats, but reduce their taxes and release their brains and energies in order that they may do as well as they can for themselves.

There is no fact more significant in the history of the United States than the fact that at the national election in 1932, after three years of the worst depression ever known, the Socialist candidate for president received only 800,000 votes. The American people generally do not believe now any more than they ever did in a paternal government. The increase of government interference in business, government expenditures and government subsidies has been due principally to the use by organized minorities of business men, farmers and veterans of the regulating and taxing powers of the government for their own selfish purposes and to the raiding of the public treasury by politicians to satisfy the demands of these organized minorities.

The business men of the country alone have sufficient influence to cause all the changes in both government and business needed to restore prosperity. When organized minorities of business men quit using their influence to get the politicians to raid the public treasury for their benefit, when business men unitedly and

consistently demand a reduction of government in business and of government expenditures, when business men generally exert themselves to balance their own budgets and revive business in their own lines, prosperity will be restored in a surprisingly short time.

Crossties

In the three years ending with 1932, it is estimated that the railways failed to make normal renewals of crossties to the extent of 60,000,000 ties. In other words, there is now an estimated undermaintenance in this one unit approximating a full year's normal replacements. Obviously, this is a deficiency which must be made good. However, it has as yet occasioned little concern, even though the tie has long been recognized as the foundation for the track structure. This sense of security arises from the rapid increase in the installation of treated ties in the years preceding 1930, which fact is now serving the roads in good stead.

There is one phase of the tie problem which should not be overlooked, however, if the roads are not to be caught unawares. This is the fact that, unlike most other materials, ties of requisite quality cannot be produced within a few days or even weeks. In the present state of most industries, deliveries can be secured almost at will—a condition on which purchasing and using officers are warranted in depending. But this condition does not exist with reference to ties. In the first place, the production of a crosstie is not subject alone to mechanical operations, for the principal element of time is that required for the seasoning of the timber after it has been cut and before it is treated. This alone requires from 6 to 12 or 15 months, depending on the kind of timber and the area in which it is produced. Furthermore, the dearth of orders during the last two or three years has caused the crosstie producers to disband their production organizations more largely than has been common in other industries and these organizations cannot be built up as readily as those of a factory. This situation will still further delay deliveries.

All of this is common knowledge to most railway men concerned with the use of crossties; yet it invariably happens that every period of reduced purchasing is followed by a wild scramble for ties—more pronounced than with other materials—with a resulting marked deterioration in the quality of the ties produced, with insufficient seasoning and with other measures adopted to hasten delivery, but which contribute directly to reduced tie life. This experience indicates the necessity for alertness on the part of using and purchasing officers today to anticipate their increased demands for crossties well in advance of those for most other materials, in order that the ties that they will require may be produced in that orderly manner that will yield the highest quality and in order that the ties so produced may be available when required.

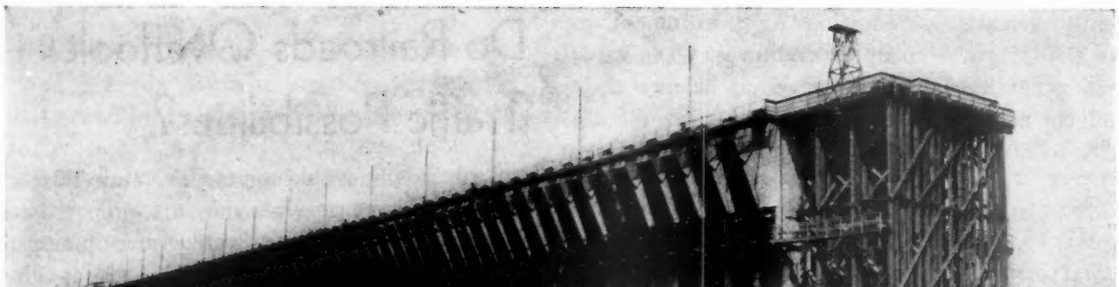
Do Railroads Overlook Traffic Possibilities?

Railroads, it would appear, are entirely too secretive about the many services they are prepared to offer to passengers. This at any rate is the opinion of a railroad supply company officer who relates a recent experience by way of example. Desirous of arranging for a visit by an elderly and somewhat infirm relative, he had resigned himself to the necessity of making the journey to accompany her. Mentioning the situation casually to a railroad man, he was surprised when he learned that the railroad would make all arrangements necessary for the lady's journey: a porter to meet the train at an intermediate point where a change in trains was necessary, seeing that she was safely transferred; the necessary instructions to the train crews so that dining car and other attendants would be alert to her needs—in fact all those services which freed the supply officer entirely from making the journey.

Possibly our informant, being as close to the railroad industry as he is, should have known more about the type of service that was available in such a contingency, but the fact is that he did not. Awakened by this experience, he has since been somewhat more inquisitive and, as a result, has been able to direct other business to the railway which either would not have existed at all or would have fallen to some better-publicized form of transport.

Do all railway employees know of these services, so that they can spread the word among the public? In particular, are the special party reductions the railroads are prepared to make exploited as they should be? The traffic department of one very alert railroad issues a diminutive monthly bulletin to all employees, informing them of the trends of various classes of traffic, telling of new industries established along the line, and in general giving them the kind of interesting information which they must have in hand if they are to be intelligently alert at all times in the quest for new business.

Knowing, as we believe we do to some degree, of the excellency of railroad service we believe that the criticism can fairly be made that, compared with other industries, this service is on the whole sadly undermerchandised. For this no blame attaches to any individual or even any department. Each is doing well the assigned job. But new conditions have arisen which make new duties for some one—the job of exploiting to the utmost the sales possibilities of every single service the railways have to offer. There are great reputations to be made and careers to be crowned with success, in our opinion, which lie in wait for railroad men who will reach out beyond their normal duties and act upon the opportunities which lie in the application of modern merchandising methods to the sale of railroad service.



The New Dock Supports Four Tracks Over 150 Bins

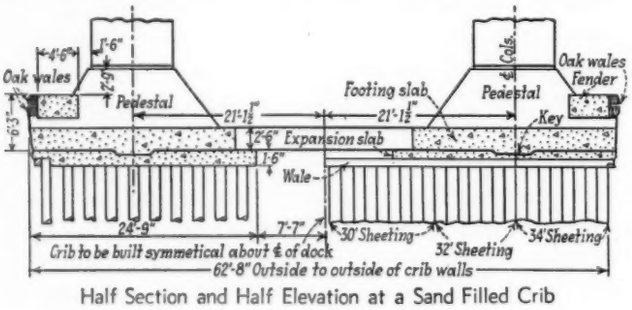
New Ore Dock Built Entirely of Reinforced Concrete

Facility completed by D. S. S. & A. at Marquette, Mich., has capacity of 43,000 tons

A REINFORCED concrete ore-loading dock of the pocket and trestle type, containing 150 pockets with a total working capacity of 43,000 tons, has been completed at Marquette, Mich., on Lake Superior, by the Duluth, South Shore & Atlantic at a cost of $1,350,000.

The new structure replaces an old dock constructed entirely of timber, which had deteriorated to such a condition that the maintenance charges had become excessive. Aside from the question of maintenance, however, the old structure was of a more or less obsolete design, being too low and narrow to permit of efficient operation and having hand-operated doors and chutes of such a type that considerable time was lost in loading ore boats. Moreover, the approach to the old dock was comparatively short and required a maximum grade of 2.4 per cent, over which it was possible to handle only 10 cars of ore between the supporting yard and the dock at one time.

The new dock, on the other hand, is designed to secure the maximum speed and efficiency in the handling of ore from the yard to the boats. It is equipped with electrically operated doors and chutes and the approach has a ruling grade of 0.62 per cent, which permits the handling of ore cars to the dock in trains of from 30 to 40 cars. The success which was attained in providing an ore-loading dock of the highest efficiency may be judged by the fact that the actual time of loading one of the first large boats at this dock was 1 hr. 45 min.



Half Section and Half Elevation at a Sand Filled Crib

Exclusive of the approach, the dock has a length of 968 ft., an overall width of 67 ft. 9 in., and a height of 85½ ft. from the mean water level to the deck. The slips have a depth of 24 ft. below mean low water level and the foundation is so constructed as to permit them to be dredged to a greater depth if this should become necessary in the future.

The general design is similar in outline to that of docks built in recent years on Lake Superior, except that it is one of a relatively small number constructed almost entirely of reinforced concrete. The bin structure is 59 ft. wide, face to face of side walls, and is divided into 75 pairs of bins by transverse walls 12 ft. center to center, and as these walls are 16 in. thick the bins have a width of 10 ft. 8 in. lengthwise of the dock. The bins have a depth of 38 ft. 1 in. at the outer sides and 6 ft. along the center line of the dock where the two bins of each pair are separated by a 12-in. longitudinal wall. The bottom has a slope of 47½ deg. from the horizontal and its thickness increases from 12½ in. at the top of the slope to 20½ in. at the door, in conformity with the variation in load imposed. The intersections of the walls and of the walls with the bottom are filleted to take care of corner stresses and to facilitate flow of the ore.

The cross walls are stayed at the top, half-way between the side and center-line wall by longitudinal members 18 in. wide by 30 in. deep that function both as ties and as struts. The entire bin structure is monolithic for lengths of 132 ft. between expansion joints.

The rails of the four tracks are carried on I-beams spanning across the bins and are supported on bearing plates set on top of the transverse walls. Smaller beams spanning crosswise support the plank deck that covers the bins and extends 4 ft. 4¾ in. beyond the side walls, except for the space between the rails of each track which is open.

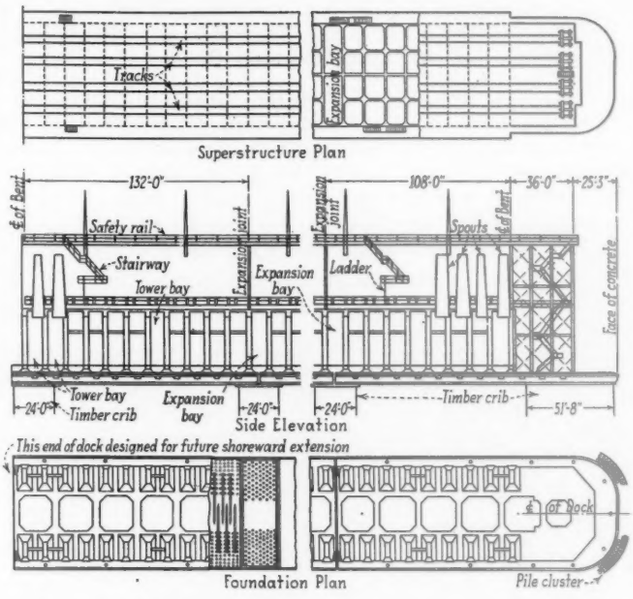
Concrete Bents Support Bins

The live and dead loads of the bin structures are supported on reinforced concrete bents in the planes of the transverse bin walls, these bents consisting of two columns 9 ft. wide by 2 ft. 9 in. thick spaced 42 ft. 3 in. center to center so that each column of the pair is located substantially under the centroid of its respective bin load.

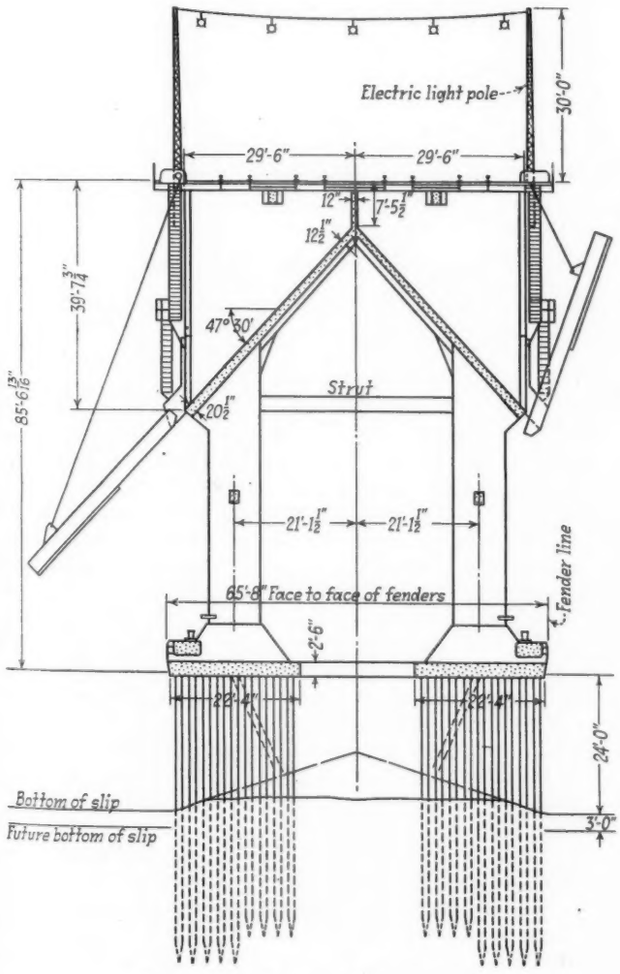
These columns are braced transversely near their tops by struts 16 in. wide by 30 in. deep, and longitudinally near their mid-height by struts 18 in. wide by 28 in. deep, while at the bottom they are provided with bases or pedestals to distribute the loads over footing slabs. At every fifth panel the structure is braced longitudinally by a solid 16-in. concrete wall extending from the footing slab to the bins on the longitudinal center line of each row of columns.

Owing to the wide spacing of the two columns of the bents, the footing was divided into two separate longitudinal slabs, each 22 ft. 4 in. wide, that lie 19 ft. 8 in. apart, but are tied together at intervals ranging from 17 ft. to 24 ft. by struts 3 ft. 6 in. wide.

These footing slabs are 30 in. thick and are each supported on eight longitudinal rows of piles, with the piles spaced 30 in. center to center in the rows. The slips on each side of the dock have been dredged to a depth of 24 ft. below mean low water level; the five outside rows of piles have a penetration of not less than 23 ft. and the four inside rows a penetration of not less than 18 ft. below the present bottom of the slips, which is ample to permit of a future dredging of the slips to an additional depth of 3 ft.



Condensed Foundation Plan, Elevation and Superstructure Plan



Typical Cross-Section of the Ore Dock

Sand-Filled Cribs at Expansion Joints

A row of batter piles, at an angle of 30 deg. to the vertical, was driven four feet center to center in each longitudinal group to provide lateral stiffness. However, the primary resistance to lateral displacement was provided by enclosing 24-ft. sections of the pile foundations, at intervals of 132 ft., in sand-filled cribs. These cribs are located at the expansion joints, which cut through the structure from footing slab to track level, and at both the shore and lake ends of the dock. The cribs, which enclose nine transverse rows of piles, have walls of Wakefield sheet piling built up of 4-in. by 12-in. planks, with 10-in. by 12-in. wales and 1¼-in. tie rods.

To permit longitudinal movement of the adjoining sections of the dock structure which meet at the expansion joint, directly over the middle of these cribs, it was not deemed advisable to have the footing slabs rest directly on the piles enclosed in the cribs. Accordingly the piles were cut off low enough to allow for expansion slabs 18 in. thick to be constructed over the tops of the cribs, with their upper surfaces level with the bottoms of the footing slabs. The tops of these expansion slabs were given a smooth surface and were covered with two thicknesses of tar paper before the regular footing slabs were concreted, in order to reduce the coefficient of friction. At the same time, transverse movement of the footing slabs relative to the expansion slabs was prevented by providing a key in the form of a longitudinal depression four feet wide by three inches deep in the top of the expansion slabs.

Along each side of the dock 15 in. above the top of the footing slab, there is a concrete fender beam constructed monolithic with and supported by the column pedestals. These beams are 2 ft. 6 in. high by 4 ft. 6 in. wide and are faced with two lines of 14-in. by 14-in. oak wales.

These fender beams also serve as the support for snubbing posts and as a walk.

Electrically-Operated Doors

The ore is discharged from the pockets through openings 7 ft. wide and 5 ft. 4 in. high. The openings are provided with metal strut-type doors and metal spouts which are raised and lowered by means of lines extending to winches on the deck of the dock. Power for the operation of the winches is provided by electric motors located at intervals along the dock on the track level, the power being transmitted to the winches through drive shafts. The motors are located at intervals of about 11 bents.

A safety rail along the edge of the deck is provided throughout the length of the structure on both sides. At intervals along the deck, stairways permit attendants on the deck to descend to a walkway along the side of the dock 36 ft. 6 in. below the deck level.

At the end of the dock, the foundation slab and concrete fender extend beyond the last pair of ore pockets a sufficient distance to permit the construction of a timber tail-end trestle 36 ft. long. This extension is also designed to permit of future extension of the dock. The corners of the fender and slab, which are cast integrally at the end, are curved to a radius of 25 ft. and are protected by pile clusters.

The single-track approach to the dock, which is 2,400 ft. long, is carried on a conventional steel viaduct except the first 400 ft., which is on an earth fill with concrete crib retaining walls, and where special construction is required on account of curvature or skew crossings over streets. Concrete piers were provided for long spans across two streets. Immediately adjacent to the shore end of the dock the approach is carried on a timber frame trestle 410 ft. long and having a maximum height of 85 ft.

The general contract for constructing the dock and approach was held by the Merritt-Chapman & Whitney Corporation. The design and construction of the project were carried out under the direction of E. A. Whitman, who is chief engineer of both the D. S. S. & A. and the Minneapolis, St. Paul & Sault Ste. Marie, these lines being operated under the same management. We are also indebted to Mr. Whitman for the information contained in this article.

Waterway Conference Asks End of Subsidies

A RESOLUTION urging Congress and the President of the United States to deny further appropriations for the construction and maintenance of the inland waterway system and to appropriate no money for the proposed St. Lawrence waterway project was adopted by the Inland Waterways Conference, held in Wichita, Kan., on February 23-24 under the direction of the Wichita Chamber of Commerce. The passage of the resolution, which also proposed the discontinuance of all inland waterways not self-supporting and the sale of inland waterways now owned by the government, followed the discussion of the economy or waste of inland waterways, the regulation of water carriers, the railroad crisis, and the effect of waterways' operation on rates to non-river points. The speakers at the meeting included E. P. Ryan, traffic manager of the Grand Island, Neb., Chamber of Commerce; W. B. Lincoln, former president of the Kansas City, Mo., Board of Trade; M. W. Borders, president of the Federation of American Business, Kansas City, Mo.; Samuel O. Dunn, chairman of the Simmons-Boardman Publishing Company, and editor of the *Railway Age*; Kenneth S. Wheery, former state senator of Nebraska; and B. E. Dwinell, general attorney of the Chicago, Rock Island & Pacific.

The resolution passed by the conference follows:

WHEREAS, the federal government is now engaged in the construction, maintenance and operation of an elaborate inland waterway system; and

WHEREAS, huge appropriations for additional construction and maintenance are being asked for the present system and for the newly proposed St. Lawrence waterway project; and

WHEREAS, the people of the United States have built and are building transportation systems, including rail, water, highway, pipe line and air, which are more than ample to take care of our transportation needs; and

WHEREAS, the inland waterway system is not self-supporting and is, therefore, an economic waste; and

WHEREAS, the construction and maintenance of the inland waterways system requires a burdensome and unjust tax on the part of all for the benefit of a few; and

WHEREAS, rates established by inland waterway carriers discriminate as between individuals, towns, cities, communities and different sections of the country; and

WHEREAS, the economic structure of this country is being challenged and the financial stability is being threatened and an emergency exists; and

WHEREAS, it is grossly unfair to tax consumers and common carriers a heavy tax to construct and maintain an inland waterway system which has placed the government in one branch of transportation, which is a rank discrimination against the railroads and other types of common carriers;

Now, therefore, be it resolved, that the Inland Waterways Conference sponsored by the Wichita Chamber of Commerce, in convention assembled at Wichita, this 24th day of February, 1933, recommends to the President and the Congress of the United States that appropriations be withdrawn for the further construction and maintenance of an inland waterway system, and that no appropriation be made for the newly proposed St. Lawrence waterway project; and

Be it further resolved, that operation of all inland waterway transportation that is not self-supporting and which is operated by a subsidy of the government be discontinued; and

Be it further resolved, that the inland waterway system now owned by the government be sold to private capital as recommended by the Shannon committee.

People and Railways Should Unite

Mr. Ryan urged the Plains states and the railways to unite in opposing waterway development. "The railways," he said, "have developed the Plains states, inland waterways having no part in the program. Through the railways our interior towns and cities have been built up. The railroads developed with the country and today the interests of the Plains states and railways are identical. If through unfair competition of inland waterways the railways are destroyed, the manufacturers and jobbers of inland points will be forced to move to waterways and the wealth builded up so sanely during the past half century will be thrown away. The railroads in this area will be destroyed, but so will the cities. Our markets have been built up around the railways and if the railways go, so will the markets."

Mr. Dunn said that "there are three demonstrable facts which are sufficient completely to condemn practically every project for the additional expenditures upon inland waterways in this country." These facts, he said, are (1) such expenditures increase taxes that already are ruinously high to provide facilities which are not needed, and the cost of transportation upon which is greater than by railway; (2) inland waterways can reach comparatively few communities and expenditures upon them discriminate against the great majority of communities that they do not reach, because the people of the latter

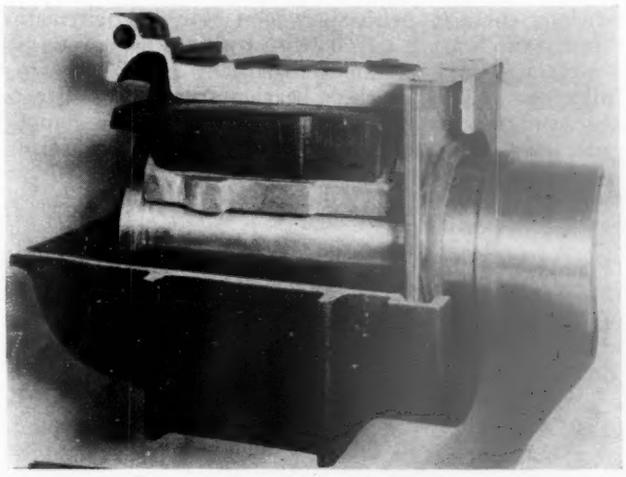
(*Continued on page 340*)

Research Improves Performance of Journal Bearings

Results of test-plant investigations indicate possibilities of increasing the efficiency of present type bearing

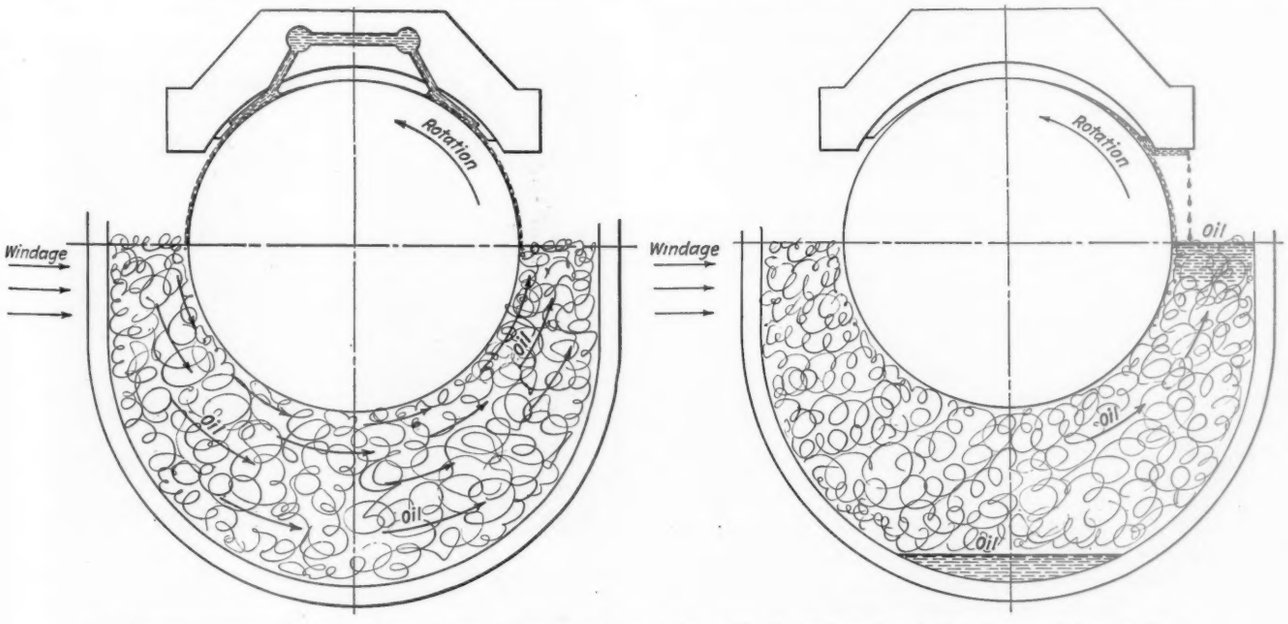
THE present A. R. A. journal bearing was adopted in 1874 and, in the intervening period of 50 years, no major change has been made in the basic principle of the friction journal bearing, with the possible exception of the addition of a soft-metal lining. During this period many improvements have been suggested and tested, predicated on the premise that improvement in journal-bearing performance must of necessity be brought about by radical changes in the design of these parts. Up to three or four years ago no research had been directed towards the determination of the possible efficiency and economy of the standard equipment. A little over three years ago, however, the Railway Service & Supply Company, Indianapolis, Ind., placed in service a special test plant designed primarily for the study of journal operation. This test plant has been in continuous operation since its completion. The specific work carried on in it has greatly accelerated experience in design, operation and practice. It is the purpose of this article to tell briefly the story of this development and the facts upon which the principles are predicated. The mass of data reflecting horsepower, coefficient of friction, oil-film thickness and the temperatures of the bearing, the oil film and the packing, all of which are only symptoms for proper diagnosis, may be considered superfluous; the important point is the constructive development resulting from their analysis.

For the purpose of this investigation a standard 5½-in. by 10-in. journal was used and this bearing was operated under loads up to those existing under a 100,000-lb. capacity car with four-wheel trucks. Speeds were used from 5 m. p. h. to 70 m. p. h. All investigations were conducted with a standard journal box and wedge and the standard method of packing with oil and waste, both the oil and waste being of a grade and quality generally representative of the best now in use.



Oil Seal to Prevent Oil from Leaking Around Axle and by the Inside Face of the Dust-Guard Cavity

Early in the investigation it was discovered that the present dust guard insured no certainty of oil supply and, as a result, was detrimental to the performance of the journal bearing as a whole. The present dust guard failed completely to keep oil in the journal box or to

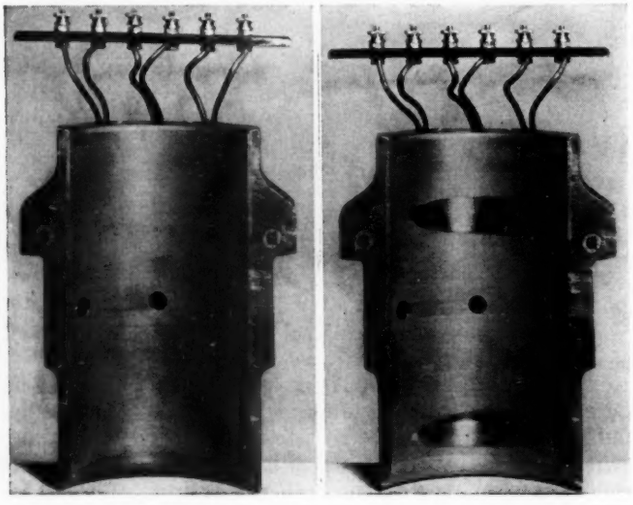


Two Sectional Views Showing a Comparison of Actual Oil Circulation with the Standard and the Improved Journal Bearing

keep dirt and water out. Therefore, a dust guard was developed which provided an oil seal to prevent the oil from leaking around the axle and also to prevent oil from leaking by the inside face of the dust-guard cavity. This design provided for ready application to any standard A. R. A. journal box and was subsequently used in all of the tests involved in this investigation.

The facts developed from this research can be crystallized by citing the performance of three bearings: Bearing No. 1, a standard A. R. A. bearing accurately broached to a full crown and proper wedge fit; bearing No. 2, a standard A. R. A. bearing accurately broached to a crown of 2½ in. and a proper wedge fit, and bearing No. 3, a standard A. R. A. bearing machined as to bearing surface, with provision for oil circulation through the bearing and likewise with a proper wedge fit.

Bearing No. 1 is similar to bearing No. 2 worn to a full crown. Both of these bearings represent a greater degree of mechanical accuracy than encountered in the general run of bearings in use today. These bearings

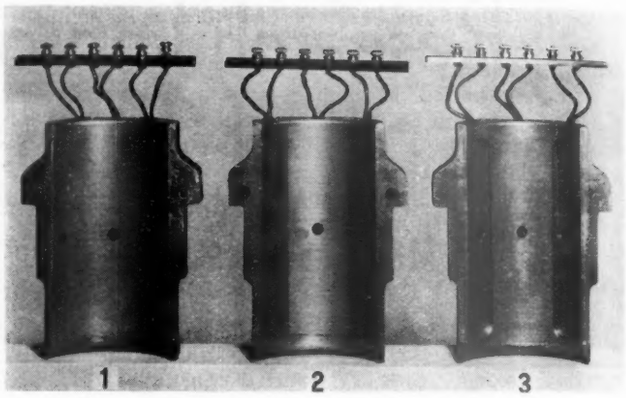


Left—Bearing No. 1 Before Operation with Oil Supply Cut Off by Removing the Packing from the Box—Load, 16,320 lb.; Speed, 25 m. p. h.; Right—Bearing No. 1 After 30 sec. Operation without Packing—Lining Wiped and Scored, Bearing Hot

were carefully broached, machined as to wedge fit, and then broken in by running for a considerable period of time, the idea being to establish the ultimate to which the present bearing could be expected to perform regardless of whether the workmanship required to produce such a result was practical or not. Bearing No. 3, which in general appearance and dimensions is a standard A. R. A. bearing, is yet quite different.

With clean oil and waste in the journal box maintained to the proper degree of saturation, an abundant supply of oil is always brought to the bearing by rotation of the journal. However, the standard bearing scrapes this oil off and it falls back on the waste on the rising side. This special bearing, No. 3, by virtue of the vacuum brought to the inbound side of the journal through ducts contained within the brass itself, fills the bearing pocket with oil and passes the additional flow through the bearing to the pocket on the outbound side and thence back to the waste. By this, several important improvements are accomplished.

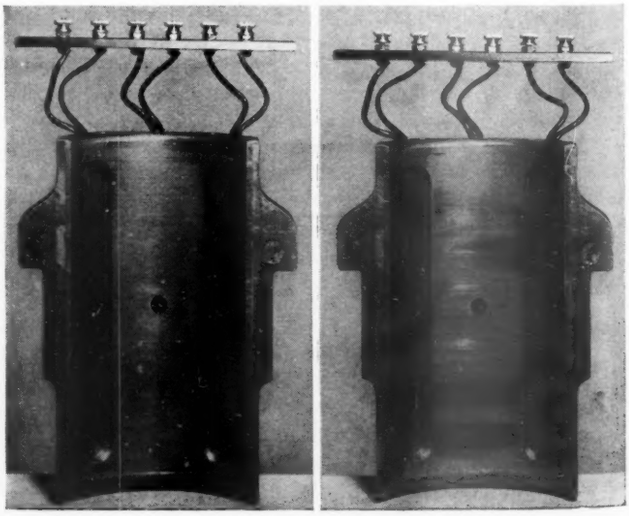
The oil thus circulates completely through the waste from one side of the box to the other, transferring bearing heat to the waste which equalizes the temperature of the waste and the bearing to a lower average temperature than is otherwise obtained. This transfer of heat and



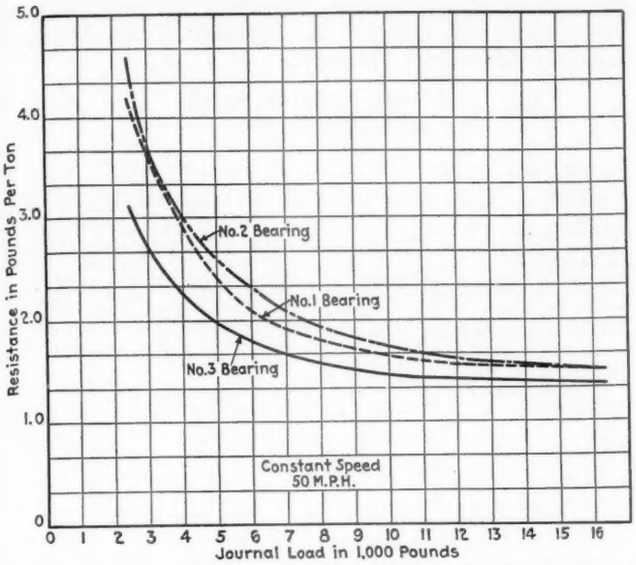
Three Bearings, the Performance of Which Crystallizes the Facts Developed from Research into Bearing Operation—Size 5½-in. by 10-in. A. R. A. with Connections for Reading Oil-Film Temperatures

circulation improves the flow of oil to the journal using the accelerated oil flow as a cooling medium. In addition, there is always in the bearing, as a result of previous rotation of the journal, an abundant supply of oil available for lubricating the bearing upon movement of the journal. Further, the packing does not become extremely dry on one side and wet on the other, as with the standard bearing. Additional mechanical functions are the even distribution of oil over the surface of the bearing, because of the longitudinal pockets in the bearing, and, because of relieved pressure and the presence of the vacuum, a great reduction of end leakage of oil from the bearing.

In comparing the bearing areas of these three bearings, it will be noted that bearing No. 1 has 44.11 sq. in.; bearing No. 2, 22.50 sq. in., and bearing No. 3, 23.36 sq. in. It has always been considered that 300 to 400 lb. bearing pressure per sq. in. was the most desirable from the standpoint of friction and wear. Bearing pressures of these values exist with bearing No. 1. Bearing No. 3, under the same condition of loading as bearing No. 1, has bearing pressures twice as great. The fallacy of the present theory is best exemplified by comparing the resistance in pounds per ton of journal friction at 50 miles an hour with varying loads and again under a condition of maximum load and speeds of 5 to 70 miles



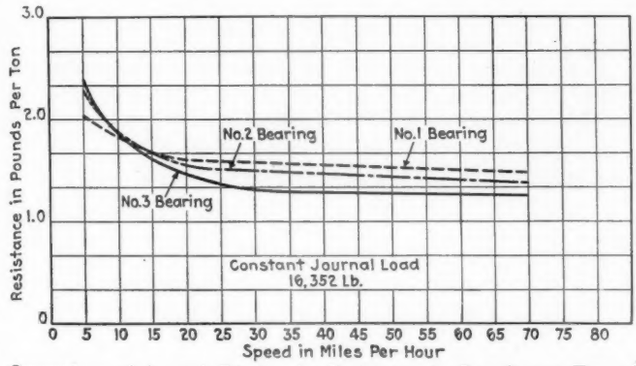
Left—Bearing No. 3 Before Operation with Oil Supply Cut Off by Removing Packing from Box—Load 16,320 lb.; Speed, 25 m. p. h.; Right—Bearing No. 3 After 30 Min. Operation without Packing Feeding Oil, Lining Not Wiped



Comparison of Journal Friction by Resistance in Pounds per Ton of Journal Load—Constant Speed, 50 m. p. h.; Journal Loads, 2,000 to 16,000 lb.

an hour for bearings Nos. 1, 2 and 3, all conditions of oil, waste and temperature being held identical.

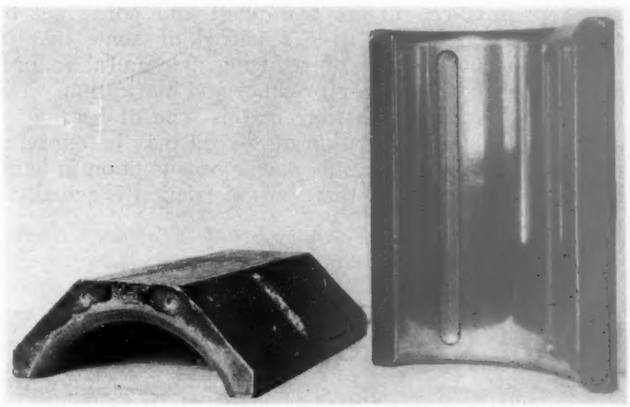
Journal friction, as expressed in horsepower or resistance in pounds per ton, is the item of most importance in the minds of railroad men. It happens to be the



Comparison of Journal Friction by Resistance in Pounds per Ton of Journal Load—Constant Load, 16,352 lb.; Speed, 5 to 70 m. p. h.

crime for which the journal bearing has been most generally accused. Because of the wide range of speeds and loads used in these tests and because journal friction only is shown, there are no figures from other sources with which they can be compared. The nearest comparison is that of various published figures known as rolling friction in pounds per ton derived from various dynamometer-car tests. Any such comparison makes it quite obvious that journal friction, as reflected by the results of this research, is but a fraction of total rolling friction. Once reduced to the minimum obtainable with the best constructed bearing, journal friction is not a limiting factor in operation and is certainly far removed from the limiting factor that it has heretofore been supposed to be. It can also be seen that the best bearing construction can adequately meet conditions of speed and load that have heretofore been considered beyond its limitations.

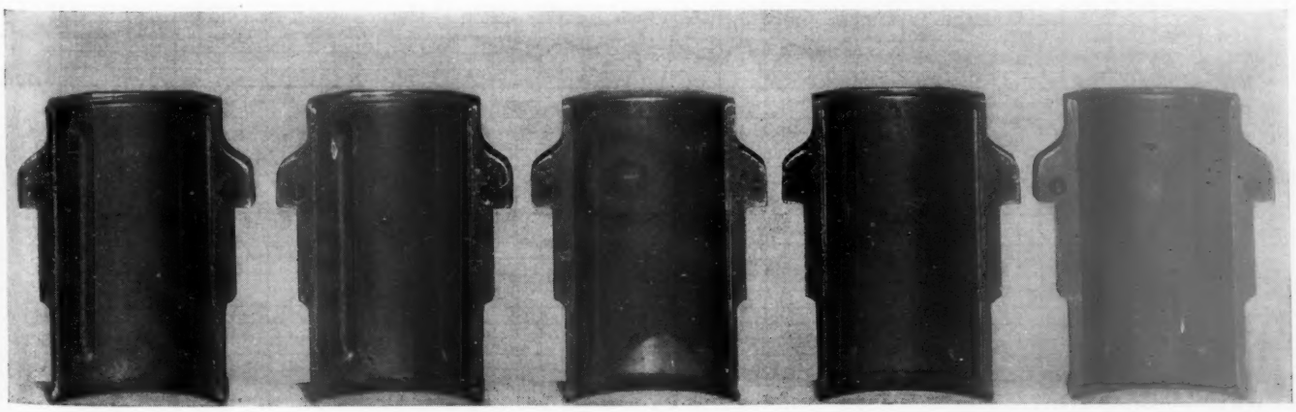
One limiting factor of the operation of the standard A. R. A. bearing, however, is justified, but is likewise easily remedied. It has generally been conceded that after standing for some time the standard A. R. A. bearing was not lubricated until it again ran for some distance. Bearing No. 1, after operating for a considerable period of time, was stopped under full load and



A Properly Broached Engine-Truck Bearing of the Improved Type

allowed to stand twelve hours. At the end of this time all journal-box packing was removed from the box. The journal was accelerated to a speed of 25 miles an hour and in less than one-half minute the bearing surface of this bearing had reached a wiping temperature and the horsepower required to run the journal at 25 miles an hour would not operate the journal at 8 miles an hour. A similar test under identical conditions was made with bearing No. 3. Bearing No. 3, however, operated for thirty minutes.

Bearings of the design of No. 3, to the extent of several hundred, have been applied to passenger and freight cars, engine tenders, trailers and engine trucks. Two modern road locomotives are operating with oil lubricated driving boxes. Nothing has developed in these service



Bearings of Design No. 3 after 100,000 Miles in Passenger Service

tests to indicate that this design is inadequate for the service intended. There is ample indication that the test-plant development has adequately anticipated the requirements of service.

An example, illustrative of what can be accomplished, is the application of eight 5½-in. by 10-in. journal bearings to a passenger car, five of which bearings were removed and photographed after 100,000 miles of service. These bearings were then put back into service and have since accumulated a considerably greater mileage. In the course of making this mileage these bearings were removed because of wheel changes and reapplied three different times.

It can be seen that the developments outlined in this article have been the result of progressive research and step-by-step changes in the instruction of existing journal box equipment. The indications are that these developments will contribute materially to a reduction in lubricating costs as they involve oil, waste, bearings, and the labor of service and inspection. The discoveries as a result of research in the test plant and borne out by tests in actual service over a period of some months indicate the possibilities of reducing mechanical failures attributable to bearing performance and lubrication. The improved lubrication possible in this type of bearing as a result of better circulation of the oil may be expected to reduce axle wear and the power consumption in hauling trains to the extent that journal friction is actually a factor.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended February 18 amounted to 514,390 cars, an increase of 13,070 cars as compared with the week before and a decrease of only 57,875 cars as compared with the corresponding week of last year. Whereas in the week before coal loading was unusually heavy, the increase in the week of February 18 was brought about in spite of a drop of 9,343 cars in coal loading. Miscellaneous freight showed an increase of 11,523 cars, l.c.l. merchandise an increase of 4,745 cars, and grain and grain products an increase of 4,589 cars, while forest products, and ore also showed increases. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week ended Saturday, February 18, 1933

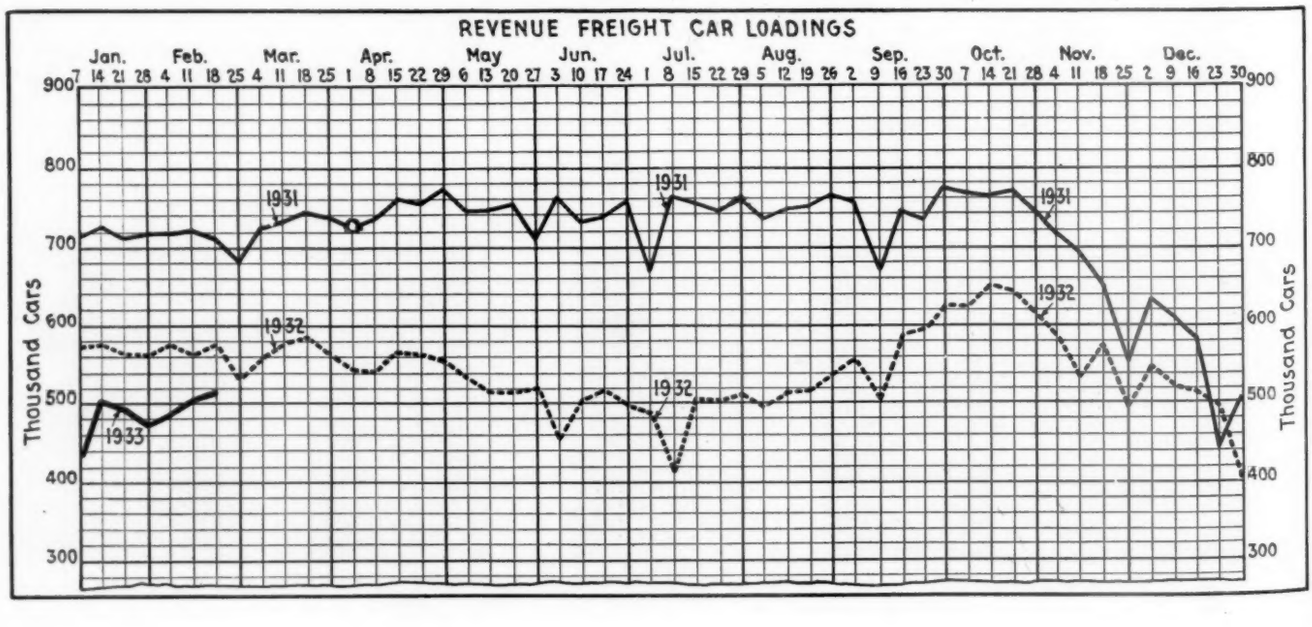
Districts	1933	1932	1931
Eastern	120,815	132,223	163,324
Allegheny	94,801	113,811	146,667
Pocahontas	41,254	36,021	42,622
Southern	80,425	84,647	108,651
Northwestern	59,991	66,461	88,057
Central Western	73,348	91,510	105,450
Southwestern	43,756	47,592	58,385
Total Western Districts	177,095	205,563	251,892
Total All Roads	514,390	572,265	713,156
Commodities			
Grain and Grain Products	26,050	40,927	40,866
Live Stock	15,504	18,935	22,181
Coal	137,546	112,064	136,112
Coke	7,189	6,191	8,647
Forest Products	14,027	19,342	33,822
Ore	2,200	3,139	5,134
Mdse. L. C. L.	158,797	188,090	215,446
Miscellaneous	153,077	183,577	250,948
February 18	514,390	572,265	713,156
February 11	501,320	561,535	720,689
February 4	483,192	573,923	719,053
January 28	472,088	560,343	719,397
January 21	496,434	562,101	715,474
Cumulative total, 7 weeks	3,409,398	3,974,494	5,026,109

The freight car surplus on January 31 amounted to 691,587 cars, an increase of 4,675 as compared with the number on January 15. The total included 381,432 box cars, 233,180 coal cars, 32,302 stock cars, and 15,188 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended February 18 amounted to 35,879 cars, compared with the previous week's total of 30,691. This was an increase of 5,188 cars, and the index number rose from 53.22 to 61.31, the highest since the middle of last November.

	Total Cars Loaded	Total Cars Received from Connections
Total for Canada:		
February 18, 1933	35,879	18,899
February 11, 1933	30,691	16,211
February 4, 1933	31,911	17,119
February 20, 1932	42,785	22,531
Cumulative Totals for Canada:		
February 18, 1933	222,276	119,752
February 20, 1932	284,846	145,441
February 14, 1931	317,173	188,295



Carriers Oppose Fare Cut; L. & N. Acts Independently

WASHINGTON, D. C.

INDEPENDENT action to reduce basic passenger fares was taken on February 27 by the Louisville & Nashville shortly after the carriers generally had sent to the Interstate Commerce Commission a statement expressing the opinion that in their judgment a general reduction in the basic fare of 3.6 cents a mile would not attract sufficient traffic back to the railroads to offset the loss in revenue that would ensue and that the users of freight service are not carrying a burden due to unprofitable passenger service.

This position of the railroads generally was taken in a joint letter addressed to Chairman Farrell by committees of passenger traffic officers representing the railroads of the East. Southeast, and West. in reply to the letter addressed by Commissioner Porter last Fall, when he was chairman, to the executives of the Class I roads asking their opinion of what should be done. The reply had not been made public either by the railroads or by the commission, although its contents have been allowed to become known.

The Louisville & Nashville filed with the commission a sixth section application asking permission to make effective on ten days' notice, instead of the usual 30 days' notice, tariffs establishing for an experimental period of six months one-way fares good in coaches only at the rate of 2 cents a mile and one-way fares good in sleeping cars of 3 cents a mile, with no surcharge, between all points on its line and for interline application to the extent that the measure of such fares is influenced by its fares. It also petitioned the commission for a modification of the orders it had issued to establish the present basis of fares for intrastate traffic in Alabama, Georgia and Illinois. Referring to the great decrease in its passenger traffic the company stated in these petitions that after careful study and consideration of the situation it had concluded that the only way it can hope to retain its present passenger traffic, and to regain some of the traffic that has been lost to other agencies of transportation, is to make substantial reductions in basic passenger fares and also to eliminate the surcharge, "in an effort to determine to what extent reduced rail fares and the elimination of the surcharge will merit and attract the support of the traveling public and thus increase its passenger revenues."

The railroad officers told the commission that they believed it was in error in its premise that the users of freight service are paying more than they would if passenger traffic were on a more remunerative basis, pointing out that the basis of freight rates generally, although they have been subject to further reductions since, was prescribed by the commission at a time when the condition of passenger traffic was much more favorable than it is now, and that, since at no time since the passage of the Transportation Act have the combined freight and passenger operations yielded a fair return, the burden of the present passenger situation as well as that of the freight is being borne by the owners of the railroads. There never has been a time, they showed, when the passenger traffic of some roads contributed much to taxes, rentals and interest.

Declaring that experience affords no reason for believing that a reduction in the basic fare would produce sufficient business to overcome the consequent loss in net revenue and at the same time take care of the inevitable increase in operating expenses that would be caused by an increase in traffic, the letter gives statistics showing that the roads which have been most successful in maintaining passenger revenues suffered no decline in passenger revenue per mile until 1931. The average passenger revenue per mile had declined to 2.149 cents by November, 1932, and for eleven months of 1932 was 2.221 cents.

Attention was called to the fact that a great part of the total passenger traffic of the country is handled by a very few roads. Omitting commutation traffic the New York Central, Long Island, Pennsylvania and New York, New Haven & Hartford in 1931 handled 47 per cent of the passengers carried and 36 per cent of the passenger-miles. Therefore the effect of any reduction in basic fares would be especially felt by these roads and it is calculated on the basis of 1931 results that a reduction in the basic fare from 3.6 to 3 cents would cause them a loss of $33,226,928 in net, while a reduction to 2.5 cents would amount to $60,912,713, and a reduction to 2 cents, or 44 per cent, would amount to $88,578,565. There is no basis for believing, it is stated, that these carriers could develop anywhere near the required constructive traffic or handle it without a great increase in operating expenses, and that failure to do so would mean financial disaster to the important passenger-carrying lines.

The carriers have been experimenting with a wide variety of individual fare reductions to attract traffic where the prospects seemed hopeful and have eliminated most excess fares, the letter says, adding that if the basic fare were reduced there would be no assurance that it would restore business taken by other carriers which now base their rates largely on those of the railroads and, being free of regulation, would be likely to meet any reduction.

Another point made was that until the depression the falling off in railroad passenger traffic was not due to the fact that the public could not afford to travel, because between 1920 and 1930 there was an unprecedented amount of travel in this country for health, pleasure, and business, and that while the decline in the average revenue per passenger-mile recently has been rapid and severe the decline in the number of passengers has been more rapid and severe.

Aside from general conditions, it is stated, the principal loss of passenger business has been to the automobile, the bus and the airplane, and the carriers can look forward to an increase in long-distance travel as business conditions improve, but the private automobile and to some extent the bus will probably continue to monopolize the short-distance travel. The railroads believe that conditions can best be met by continuing efforts which they have been making to reduce operating expenses, make special fares, and obtain legislation to stabilize competition.

The letter also declares incorrect the theory that each class of traffic is expected to yield a fair return only on that part of the railroad property devoted to its respective services and it is pointed out that the railroads have never concurred in the commission's formula for segregating the expenses of passenger service from freight expenses.

THE SOUTH AFRICAN RAILWAYS, if present plans materialize, will in future make greater efforts to attract tourists from other countries, says a recent report from Johannesburgh to the United States Department of Commerce. The report stated that the next railway budget was expected to include £25,000 for such promotional purposes. Two years ago the South African Railways Administration closed its United States offices as an economy measure.

Burlington Replaces Crossing Gates With Flashing-Light Signals

The Crossing Signal at LaFayette Street

Six streets were closed and better protection afforded at remainder—36 per cent saving on investment

By W. F. Zane
Signal Engineer, Chicago, Burlington & Quincy

THE Burlington has recently completed a program of modernizing its highway crossing protection through Macomb, Ill., which has resulted in more effective full-time protection at all street crossings. Macomb, a city of 8,500 population, is located on the Chicago-Kansas City main line of the Burlington, about 40 miles southwest of Galesburg, Ill. The line passes through the residential and business sections of the city, the passenger station being located on the north side of the public square. As almost all of the streets extended across the tracks, there were a total of 22 crossings in a distance of 8,000 ft. along the main line. The problem of providing protection was further complicated by the fact that some of the streets crossed the tracks at an acute angle, and in some cases intersected other streets near the tracks or on the tracks. Gates had been in service at seven of these crossings and one other street had been protected by a wig-wag signal.

Several factors led to the consideration of a modernization program for crossing protection in this town. In recent years certain of the streets have been paved, through highway traffic being handled on LaFayette and Jackson streets, while some of the other crossings on unpaved streets in the residential section were used infrequently.

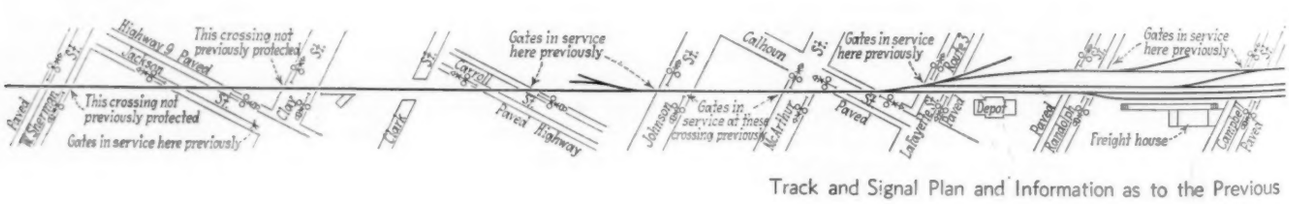
The gates at Jackson and Carrol streets were controlled from a tower located midway, while those at Johnson and McArthur streets were controlled from McArthur street, a gateman being on duty at each of these towers from 7 a. m. to 5 p. m. daily. The gates at LaFayette, Randolph and Campbell streets were controlled from a tower at LaFayette street, with gatemen on duty two tricks from 7 a. m. to 11 p. m. A wig-wag signal, controlled automatically, was in service at Pearl street. All of this crossing protection had been in service for years, the gates being of the mechanical type operated by wire-pull connections. To replace these old gates with others of newer designs, and to provide similar protection at any considerable number of the 14 remaining crossings would have involved unreasonable costs for construction, maintenance and operation.

Study of Problem

Representatives of the railroad joined with the city authorities in a thorough investigation of local conditions, as a result of which it was then decided that the public would be served much better, with reference to safety, if at least 6 of the crossings were closed, and flashing-light signals, affording 24-hour protection, were installed at the 15 remaining crossings, thus permitting the removal of all of the old gates. It was finally decided to proceed with such an installation, and the new protection was placed in service on September 26.

Special Controls

Although regular track-circuits are provided for the automatic control of the flashing-light signals, special control features were required to meet unusual condi-



Track and Signal Plan and Information as to the Previous

tions. During the day there is considerable switching in and out of the freight house and industry tracks shown on the track diagram. In order to prevent unnecessary operation of the signals when cars are left standing on the main line, as well as to protect switching movements over the crossings on side tracks, it was necessary to install a part-time manual-control arrangement for the signals at Edwards, Madison, Dudley, Campbell, Randolph and LaFayette streets. The control buttons are mounted in a new watchman's tower located near Dudley street. One watchman, who is on duty in this tower during the day trick, watches all train movements and is informed from time to time by the yard conductor as to what switching moves are to be made. Normally the signals operate automatically under track circuit control for movements on the main line. However, if the watchman can see that a car is to be left on the main line for some time, he shuts off the signals at the crossings where no train movements are to be made. Likewise, if a movement is to be made over a crossing on a siding not equipped with track circuits he operates the signals to protect the movement. At the end of his period of duty, this watchman returns all switches to normal, which again restores the signals to control automatically by the track circuits. This special part-time manual control is in effect only for the signals at the six crossings mentioned, the signals at the remaining crossing being controlled automatically all of the time.

Another special feature was installed to solve a local problem. As the passenger station is located between Randolph and LaFayette streets, the signals at these streets would continue to operate while a train was standing at the station, thereby delaying street traffic unnecessarily. In order to correct this condition a special arrangement was provided to discontinue the operation of the signals after a train had stopped at the station for a predetermined length of time, and then, when the train starts to move from the station, the signals in advance of the train automatically resume operation.

The part-time manual control and the special control for the station area were provided to eliminate all unnecessary operation of the signals. As a result, automobile drivers know that a signal in operation indicates that a train is approaching the crossing and they soon learn not to take chances when the signal is operating. Furthermore, these people appreciate the fact that they are not delayed unnecessarily.

Economy Statement

1. Estimated cost of installation:		
(a) Chargeable to capital investment	$13,368.00	
(b) Chargeable to operating expenses	3,515.00	
(c) Estimated gross total		$16,883.00
(d) Less $1,000 capital expenses which would have been necessary to comply with city's demand for additional protection		1,000.00
(e) Estimated net total additional expense of this project		$15,883.00
2. Annual salary of four gatemen	$2,915.32	
Maintenance and operating expenses	600.00	
Estimated present total annual expense		$3,515.32
3. Estimated proposed annual salary, one gateman	$702.84	
Estimated proposed annual maintenance and operating expenses	400.00	
Interest charges at 6 per cent on net total cost of $15,883	952.98	
Estimated proposed total annual expense		2,055.82
Estimated annual savings		$1,459.50
4. Additional savings:		
(a) Annual salary of additional gatemen demanded by city	$2,915.32	
(b) Estimated annual maintenance and operating expense of additional gates or signals demanded by city	120.00	
(c) Estimated maintenance expense of 6 crossings that were closed	150.00	
(d) Total		3,185.32
Estimated total net saving per annum		$4,644.82
5. Estimated annual return, over and above 6 per cent interest on estimated net total expenditure:		
(a) On net capital investment of $12,368		36.75%
(b) On net total cost of $15,883		28.61%

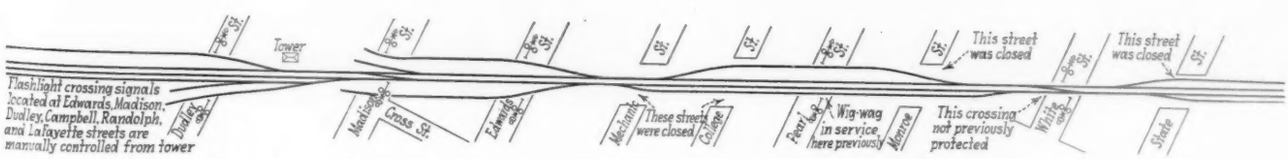
Economic Aspects

When the signal installation was placed in service, barriers were set up to cut off approach to the crossings at the six streets, which were closed.

On account of the peculiarities of this project, the economies actually effected cannot be claimed as net savings, because a considerable part of the economy was occasioned by forestalling additional expenditures. These various items, which represent the total economy of this installation, are listed in the table.

The flashing-light signals used on this installation are the Union HC-51, equipped with hoods and 20-in. backgrounds. The lenses are 8⅜ in. in diameter and have the regulation 30-deg. spread. The lights are spaced according to standard 2 ft. 6 in. and are mounted on 4-in. poles 7 ft. above the grade of the street. Standard Burlington precast concrete foundations were used. A standard cross-buck sign is mounted on the mast above each signal. One signal at each street is equipped with a crossing bell. This installation was made by signal department forces of the Burlington.

View Looking North on McArthur Street Showing Arrangement of Signals Where Streets Intersect Near Tracks



and Present Protection in Service at Each of the Crossings

American Steel Foundries' Metallurgists Win Award

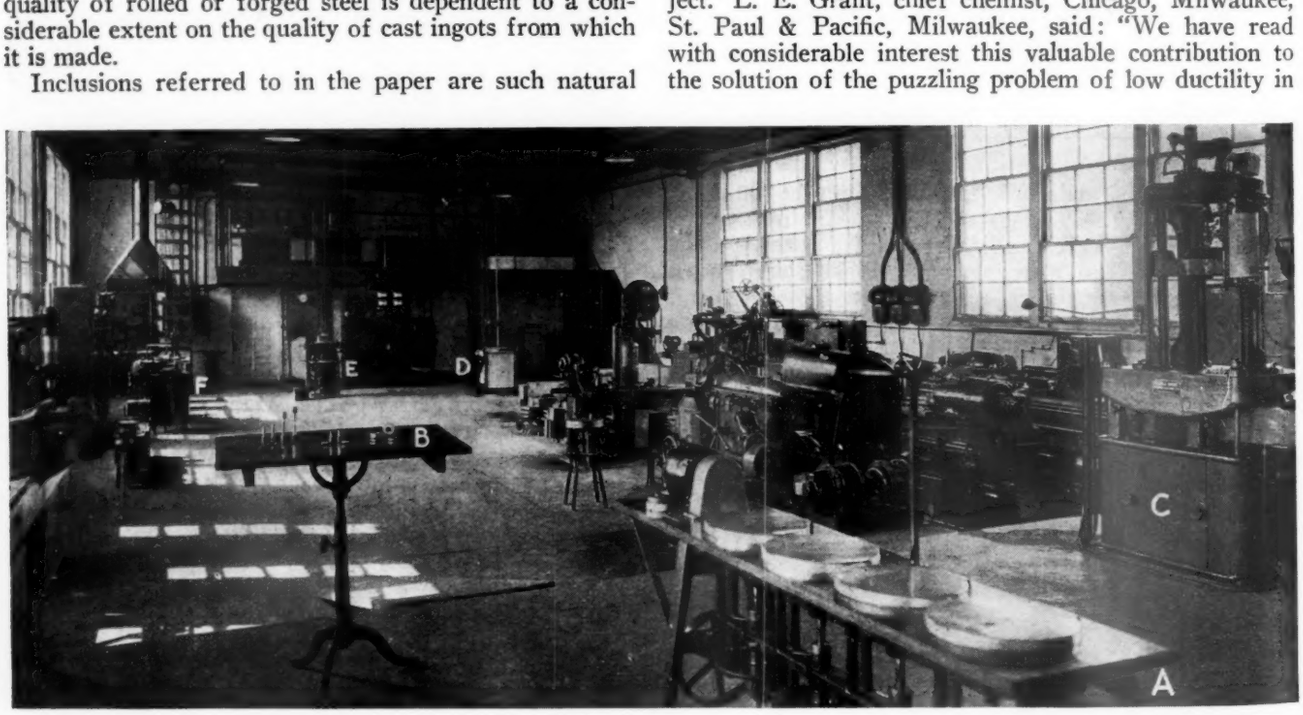
PUBLIC recognition of the important contribution of the American Steel Foundries' research staff to generally improved steel making was given recently when two research metallurgists of this company, C. E. Sims and G. A. Lilleqvist, were awarded the Robert W. Hunt prize by the American Institute of Mining and Metallurgical Engineers for the best paper on iron and steel presented before the institute in 1932. The award, consisting of a money prize of $125 and a suitably-engraved certificate for each man, was made at the annual dinner of the institute, held Wednesday evening, February 22, at the Commodore hotel, New York. The committee which made the award consisted of the following men: G. B. Waterhouse, professor of metallurgy, Massachusetts Institute of Technology, chairman; James Aston, professor of mining and metallurgy, Carnegie Institute of Technology; E. C. Baine, metallurgist, United States Steel Research Laboratory; F. M. Becket, vice-president, Electro Metallurgical Company; C. W. Jennet, vice-president, Sperry Rail Service Corporation; C. L. Kinney, director of physical laboratory, Illinois Steel Company; John A. Mathews, vice-president, Crucible Steel Company of America, and F. N. Speller, metallurgical engineer, National Tube Company.

The paper, presented jointly by Messrs. Sims and Lillieqvist and entitled "Inclusions—Their Effect, Solubility and Control in Cast Steel," was based on the results of experiments and observations extending over a period of three to four years in an effort to discover the steel-making procedure necessary to produce sounder steel castings of superior physical qualities. While this study was confined to cast steel, it has a bearing on the manufacture of rolled or forged steel also, since the quality of rolled or forged steel is dependent to a considerable extent on the quality of cast ingots from which it is made.

Inclusions referred to in the paper are such natural inclusions as aluminum, iron-oxide, sulphides, silicates, etc., entering into the chemical reactions of steel making and having a definite effect upon the quality of castings. No consideration was given to accidental inclusions, such as entrapped particles of slag, nozzle, runner or mold, which are always dangerous and can be avoided by recognized methods of foundry procedure. The effects of inclusions in steels made by the basic open-hearth, acid electric-arc and electric-induction processes are analyzed and compared and reasons advanced for occasional "bad" heats and "dirty" steel. Complete modern equipment for making these experimental steel mixtures and heat treatments, chemical analyses, polished and etched specimens, micro-photographs, tensile, endurance and wear tests, were all available at the American Steel Foundries' research laboratory, Indiana Harbor, Ind., where the work was carried on under the direct supervision of W. C. Hamilton, director of research.

Among the important conclusions drawn in the paper by Messrs. Sims and Lillieqvist are that the character and distribution of inclusions in cast steel directly affect the ductility of the steel; that globular-type inclusions, scattered haphazardly through the steel, have a minimum effect on the physical properties, as compared to eutectic-type inclusions, which form a network in the steel and cause low ductility; that variations in the quantity of inclusions found in steel have little effect on the physical properties; that, if the iron-oxide content of the steel is high, the inclusions will precipitate at the beginning of solidification and will exist as globules of silicates and sulphides and the steel will have good ductility; and that if the iron-oxide content of the steel is too low, the solubility of the sulphides is increased to such an extent that they precipitate as an eutectic with the last steel to freeze, the ductility of such steel being low.

In discussing these conclusions and the paper in general, differences of opinion regarding certain details developed, but the consensus was that the paper comprised an important addition to knowledge of this subject. L. E. Grant, chief chemist, Chicago, Milwaukee, St. Paul & Pacific, Milwaukee, said: "We have read with considerable interest this valuable contribution to the solution of the puzzling problem of low ductility in



Partial View of A. S. F. Research Laboratory and Equipment Used by Messrs. Sims and Lillieqvist: *A* Polishing Machine; *B* Table with Pull, Endurance and Wear Test Specimens; *C* Tensile Test Machine; *D* Induction Furnace; *E* Carbon-Resistance Furnace; *F* Heat-Treating Furnaces—Other Apparatus Includes Electrical Equipment, Machine Tools, etc.

steel castings. While some of the suggestions made will undoubtedly not be universally accepted, a frank discussion of the whole question of low ductility is certain to be beneficial. We were especially interested in the authors' statement that they were able to predict ductility from an examination of the unetched specimen on the microscope."

Another comment presenting the railroad point of view was made by W. I. Cantley, mechanical engineer, Lehigh Valley, Bethlehem, Pa., who said in part: "In the paper under discussion, the authors clearly demonstrate that a definite type of inclusion has a definite effect on the physical properties of the metal. The consistency of results obtained under repeated observations establishes beyond reasonable doubt the accuracy of their conclusions and adds materially to the immediate practical value of their contributions. As a user of large tonnages of various steel products, we are keenly appreciative of the points developed by Messrs. Sims and Lilleqvist in their work and believe it will lead to a better understanding of a problem which has been rather obscure, and with the stimulation of effort which undoubtedly will follow on the part of other investigators we should expect an actual improvement in the quality of steel products."

Railroad Reorganization Bill Passed by Congress

WASHINGTON, D. C.

THE bill to amend the federal uniform bankruptcy act, providing for a method of railroad financial reorganization under the supervision of the Interstate Commerce Commission without receivership for companies that are insolvent or unable to pay their indebtedness, intended to enable some of the roads to reduce their capitalization or fixed charges, was put through Congress this week in a hurry. The Senate on February 27 passed by a vote of 44 to 8 a substitute for the bill that had been passed on January 30, containing numerous amendments, but to avoid the delay of a conference on the two bills, which might have endangered passage before March 4, the House on March 1 accepted the Senate amendments by a vote of 207 to 6. The Senate substitute for H. R. 14,359 was along the lines of the bill introduced in the Senate by Senator Hastings, of Delaware, S. 5551, which was greatly preferred by the railroad interests but it was further liberally amended during the debate in the Senate. The bill also includes provisions dealing with individual debtors and farmers but omits the section dealing with corporations generally which was in the House bill.

The Hastings substitute for the railroad section of the bill was accepted by the Senate by a vote of 42 to 15 after a lively debate in which there was some opposition because that section had not been considered by the judiciary committee. The committee had reported the bill after eliminating the railroad and corporation sections because it had not had time to consider them and had proposed that they be deferred to the next session of Congress. Senator Hastings insisted that the railroad section was in some respects the most important feature of the bill and it was accepted on the ground of the representations made in the debate as to the critical condition of several railroads and because of reluctance to continue Reconstruction Finance Corporation loans to railroads without some such provision for reorganizations.

Senator Couzens, chairman of the committee on interstate commerce, aided in the passage of the bill by urging that position, and convinced some of the hostile Senators that it was not one desired merely by the railroad interests by telling them that "it is a plan to take out of the Wall Street bankers the power to reorganize the railroads, which they have had heretofore . . . and put the control in the combined hands of the Interstate Commerce Commission and the courts." He said that since the introduction of his resolution to suspend further railroad loans both the Interstate Commerce Commission and the Reconstruction Finance Corporation had withheld further loans to railroads. The Interstate Commerce Commission has recently approved several important railroad loans but the R. F. C. had to some extent been postponing action on them.

Both bills, but particularly the Senate draft, represent the work of Solicitor General Thacher in collaboration with sub-committees of the judiciary committees of both the House and the Senate, and also many suggestions offered in consultation with the Interstate Commerce Commission and representatives of the railroads, the security-holders, and the President-Elect. The principal difference between the railroad sections of the two bills was that the House bill gave a greater degree of jurisdiction and control over reorganization proceedings to the Interstate Commerce Commission, subject to court confirmation, while the Senate bill, although providing for I. C. C. supervision over the proceedings, made less effort to curtail the functioning of the courts. Creditors of any railroad having claims or interests aggregating 5 per cent of the indebtedness may also file a petition proposing a reorganization, after having obtained approval of the commission.

Both bills provide for placing the property in the hands of a trustee pending the working out of a reorganization plan in proceedings before the commission and for making it effective upon its acceptance by two-thirds of the creditors, to eliminate minority interference.

Consideration of the bill was begun in the Senate on February 24, when Senator Hastings offered the railroad section as an amendment, but most of the session on that day was taken up with argument as to whether it would be worth while to try to pass in the last week of the session a bill which had not been studied by the judiciary committee. An opportunity for further study of the bill was afforded over the week-end and the bill was passed at a late session on Monday.

Senator Hastings, who was in charge of the bill, said that all the information he could get with respect to the railroad situation convinced him that it is particularly serious at this time, that nearly $300,000,000 had been loaned them by the R. F. C. and that there is coming due this year nearly $300,000,000 of bonds and equipment notes. "Most of us believe," he said, "that it is necessary to do that in order to keep the railroads operating and believe that it is necessary to keep them out of receivership in order to prevent financial institutions which hold their securities from going into bankruptcy or something else happening to them. It may be true, indeed I know that it is true, that many of the railroads must be placed in a position where they can negotiate with their investors in order to protect themselves from receiverships. Whatever we may say with respect to receiverships, there is no corporation anywhere that is so greatly handicapped under a receivership as is a railroad corporation. They have their property scattered in various parts of the country. It becomes necessary to have ancillary receivers appointed.

Somebody has got to operate the property. It is undoubtedly done at great expense. It is done in most instances with great inefficiency.

"Under this plan it is believed that in a very short while the railroads could present their plans to the Interstate Commerce Commission. They could help the railroads to arrange a plan. They would send out notices to every creditor and to all the stockholders. If they agree upon the plan which the Interstate Commerce Commission finds equitable and that it ought to be accepted, then it is submitted to the creditors of the corporation. The plan is taken to the court after it is approved by the Interstate Commerce Commission. If, after the Interstate Commerce Commission has approved it, the judge who is considering it finds it equitable and in the public interest, then he approves it, and, without that railroad ever being in the hands of a receiver, it has adjusted its affairs with its investors; it has taken, it may be bonds having interest maturing every three months, and changed them into merely income bonds—but it does not mean that the corporation can be put in the hands of a receiver by any person who holds one of its bonds upon which interest has not been paid."

An amendment offered by Senator Fletcher, of Florida, which was accepted, provides that in the case of a railroad lying wholly in one state the proceeding shall be brought in the federal district court within that state instead of where the headquarters are located. Another, offered by Senator Bratton, of New Mexico, would except roads which do not derive more than 50 per cent of their revenues from transportation of freight. Senator Bratton also obtained approval of an amendment striking out the provision for relief from the anti-trust laws when necessary to carry out a plan, and one providing that trustees to be appointed by the courts shall be selected from a panel of standing trustees designated by the commission. The House bill provides that the trustees shall be recommended by the commission. Senator Norris, of Nebraska, offered an amendment, which was agreed to, providing that no judge or trustee shall change the wages or working conditions of railroad employees except in the manner prescribed in the railway labor act or in the Chicago agreement.

Senator Couzens told the Senate that the bill was evolved "for the purpose of cutting down and trimming down the capital structure, so that the railroads might exist without further borrowings from the government" and he pointed out that under it the Interstate Commerce Commission, instead of approving a loan to a railroad, might inform it that its capital structure needed reorganization, as it did in the Frisco case last summer. He said he objected to the Reconstruction Finance Corporation "being a refuge with government money for railroads which are overcapitalized."

Senator LaFollette said he preferred the plan suggested by Commissioner Eastman proposing the creation of a division of reorganization in the Interstate Commerce Commission. Senator Norris, chairman of the judiciary committee, suggested that the railroad section be referred to the committee on interstate commerce for further study and consideration at the next session but Senator Couzens reminded him that he would not be chairman of the committee after March 4.

Earlier in the day, in discussing a bill to provide for a moratorium on farm and home mortgages, Senator Borah, of Idaho, had said: "We may be in a position where we are going to take over the farms, but we are already in a position where we are practically taking over the railroads, and will undoubtedly do so if we continue our present program. We will not only take over the railroads, but we will take over the insurance companies and we will take over the banks, and we will continue until we make the Soviet government seem modest in its communistic program."

Railway Reorganization Procedure Outlined

Under the bill as passed the first step is for the railroad to file with the court a petition stating that it is insolvent or unable to meet its debts as they mature and that it desires to effect a plan of reorganization. A copy is at the same time filed with the commission. If the court approves the petition it appoints a trustee, from a panel of standing trustees appointed by the commission, who would operate the business of the railroad and could be authorized by the court to issue certificates of indebtedness. A plan of reorganization may be proposed by the debtor company, by the trustee, or by not less than 10 per cent in amount of any class of creditors, and filed with the commission, which would hold a public hearing on it. Following the hearing the commission would recommend a plan of reorganization (which may be different from any which has been proposed) that will, in its opinion, be equitable, will not discriminate unfairly in favor of any class of creditors or stockholders, will be financially advisable, and be compatible with the public interest. The commission may later, on petition, modify any of its recommendations and conclusions. Thereafter the plan recommended by the commission would be submitted to the creditors and stockholders for acceptance or rejection and the commission may afford an opportunity to accept or reject any other plan. Acceptance of stockholders would not be requisite to the confirmation of the plan if the judge shall have determined that the corporation is insolvent, or that the interests of stockholders will not be adversely affected, or that the debtor has accepted the plan and its stockholders are bound by such acceptance. After certification of the plan to the court by the commission and after hearing such objections as may be made to the approved plan, the judge would confirm the plan if satisfied of various specified conditions and upon such confirmation the provisions of the plan would be binding and the debtor and other corporations affected would be given full power and authority to put the plan into effect. In the event the judge should disapprove the plan he would file an opinion stating his reasons.

A plan of reorganization may not be finally approved by the commission until it has been accepted in writing by or on behalf of creditors holding two-thirds in amount of the claims of each class whose claims or interests would be affected by the plan, and stockholders holding two-thirds of the stock of each class, except that if adequate provision is made in the plan for the protection of the interests, claims, and liens of any class of creditors or stockholders, in a manner provided in the law, then the acceptance of the plan by each class of creditor or stockholder shall not be requisite to approval. Upon acceptance of the plan the commission may without further proceedings authorize the issue of securities, assumption of obligations, transfer of any property, or consolidation or merger of properties, to the extent contemplated by the plan consistent with the purposes of the interstate commerce act.

Enactment of this bill is in part in accordance with ideas announced by Governor Roosevelt in his campaign speech at Salt Lake City on September 17, in which he outlined his railroad policy, and also with recommendations made by the Interstate Commerce Commission in its annual report urging a substitute for present receivership practice. Representatives of the railroads also have been working hard for the enactment of some such legislation.

Charles J. Hardy Succeeds Woodin as A. C. F. President

General counsel of equipment company and subsidiaries takes over duties which predecessor relinquishes for Treasury post in new Cabinet

AT a meeting in New York on March 2 of the directors of the American Car & Foundry Co. and associated companies, the resignation of the president, William H. Woodin — made necessary by his appointment as Secretary of the Treasury in President Roosevelt's Cabinet — was accepted. Charles J. Hardy, general counsel of the company and its affiliates, was elected president to succeed Mr. Woodin. William C. Dickerman, president of the American Locomotive Company, was named by the board to succeed Mr. Woodin as a member of the executive committee of the American Car & Foundry Co., the American Car & Foundry Export Co. and the American Car & Foundry Securities Corp. At the same meeting, William H. Woodin, Jr., was elected a director of the American Car & Foundry Co. and subsidiaries, and Noah A. Stancliffe was elected to the directorate of the American Car & Foundry Co., succeeding Oscar B. Cintas, who was recently appointed by the government of Cuba as its ambassador to the United States.

Charles J. Hardy

The new president of the company, Charles J. Hardy, has served it for twenty-five years as general counsel, director and member of the executive committee. Born in New York, Mr. Hardy was educated at the College of the City of New York and at Columbia University, from which latter institution he received the degree of LL.B. in 1885. Admitted to the bar of New York State in 1887, he began the practice of law in that year, his association with the American Car & Foundry Co. dating from 1908. Mr. Hardy is senior member of the law firm of Hardy, Stancliffe & Hardy and a director of the following companies: American Car & Foundry Co., Julius Kayser & Co., the Brill Corporation, the Standard Forgings Corporation, the United Cork Company, the St. Louis Forgings Company, James Elgar, Inc., the American Car & Foundry Securities Corp. and the Pacific Car & Foundry Co.

Mr. Hardy assumes the presidency of this great company and its affiliates at a time when its activities are at a very low ebb. Orders received by it for freight cars in 1932, as reported in the Annual Statistical Number of the *Railway Age*, reached the absurd total of 35, whereas no orders for passenger cars whatever were received. Conservatively financed and managed, however, the company is well able to meet the stress of the times. Meantime, the very depth of the depression and the virtual cessation of orders for its products affords the best possible evidence of an accumulating demand which is being built up by the unalleviated depreciation and obsolescence of existing railway equipment. Many railroad men foresee a new era in railway car equipment as imminent, with the development of containers and other devices to co-ordinate the railroads with other forms of transport. In such a development, if it occurs, this company may be expected to take a leading part. For several years it has numbered among its enterprises the building of rail motor cars and buses, and is known to be hospitable to, and active in the development of, improved forms of freight car equipment. It may be expected, therefore, that early in Mr. Hardy's administration he will find the company which he heads far more active than it is at present.

In announcing Mr. Woodin's resignation the board of directors issued the following statement:

"William H. Woodin, who has accepted President-elect Roosevelt's appointment to the office of Secretary of the Treasury, today severed his official connection with the many corporations which have enjoyed the benefit of his services as a member of their directorates. Among these are American Car and Foundry Company and its various subsidiary and affiliated concerns—American Car and Foundry Securities Corporation, American Car and Foundry Motors Company, The Brill Corporation, and others.

"With his father, the late C. R. Woodin, William H. Woodin was one of the founders in 1899 of American Car and Foundry Company, and has guided its destinies as president uninterruptedly since 1916, making it during the war time one of the chief reliances of our government for the production of munitions, of mobile gun mounts and of heavy gun forgings, while at the same time supplying the major part of the rolling stock for

the railroads when they were under government control and operation.

"It was with the deepest regret that his associates accepted the resignation which the law governing the high office to which Mr. Woodin has been called by President-elect Roosevelt makes necessary."

Following the announcement of his election to the A. C. F. presidency, Mr. Hardy issued a statement, saying:

"As a result of Mr. Woodin's able management the American Car & Foundry Company is in a position to cope with the many problems and the undeniable difficulties today facing all industrial concerns. It will be my primary object to continue his wise program, conservative yet progressive, co-ordinating into the closest and most efficient union the many units of the organization to the end that the company may take full and early advantage of every opportunity to serve the transport systems of this country and so to further the interests of its stockholders."

Waterway Conference Asks End of Subsidies

(*Continued from page 328*)

communities are taxed to pay for them and do not get their share of the reductions of freight rates made by tax-built and tax-supported waterways; and (3) by diverting traffic from the railways, development of waterways reduces the volume of railway traffic and thereby makes higher than would otherwise be necessary the rates that the railways must charge upon their remaining traffic.

Transportation by Rail Cheaper Than by Water

"It was long accepted as axiomatic," said Mr. Dunn, "that transportation by inland waterway was cheaper than by railway because nobody took the pains to add the taxes that inland waterways cost to the freight rates charged on them to ascertain the actual total cost of inland water transportation. Since economic investigators have ascertained for almost every important waterway the tax cost per ton per mile of transportation upon it, and added it to the freight rate per ton-mile upon it, and since the nation, groaning under an unbearable burden of government expenditures, has become acutely tax conscious, the entire movement for huge additional government expenditures upon economically unjustifiable and worthless waterway projects is in danger of blowing up.

"The progress of the inland waterway movement in the past has been principally due to two causes; first, the desire of members of Congress to get appropriations from the public treasury to spend in their own districts and states to help them get elected, and second, the desire of many shippers to get the taxpayers to pay a large part of the cost of shipping their freight. Many shippers are waking to a realization that they have to help pay the increased income and other federal taxes necessitated by expenditures on waterways, and that they lose more in increased taxes through waterway development than they save in freight rates.

"The Ohio system is the most highly developed river system in the country and freight can be carried on it cheaper than on any other river system, excepting perhaps the lower Mississippi. The average railway rate in Ohio river territory is 9 mills per ton-mile. The average cost of transportation on the Ohio river system is 12½ mills per ton-mile. The reason why many shippers use it is that they pay only 6 mills of this in freight rates, while the American people pay 6½ mills of it in taxes. With the cost of transportation almost 40 per cent higher on the Ohio river system than by railway, how can any sane person believe that transportation on the upper Mississippi, the Missouri and other shallower rivers can ever be made as cheap as by rail?"

Waterway Transportation Cannot Stand On Its Feet

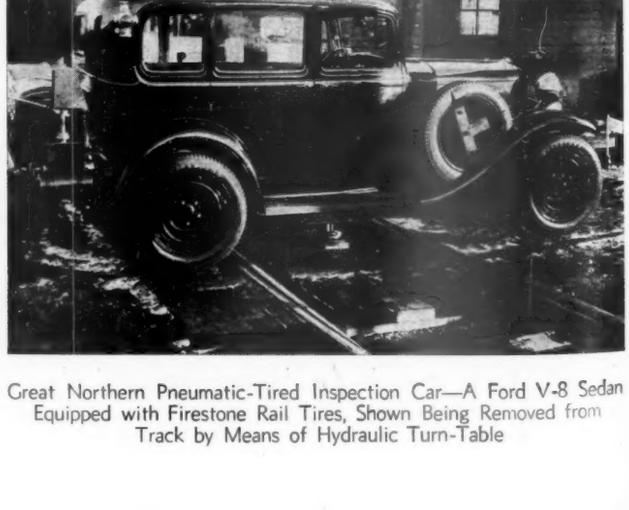
Mr. Dwinell discussed the economy and waste of the inland waterways system. "Inland waterway transportation," he said, "cannot stand on its feet. It is the only major transportation agency, the facilities of which must be supplied wholly at the cost of the taxpayer. The taxpayers build and maintain the waterways. The boat owner pays nothing for the privilege of using them. Inland waterway transportation is the only transportation agency which is unable to secure on its own merits the traffic which is thus transported.

"The question as to whether inland waterway transportation is economy or waste is perhaps best shown by the actual experience of the Federal Barge Line. It pays no taxes. Its officers deny that it should pay taxes. On an average, 6½ cents of every dollar that a railroad collects from shippers is paid out in taxes and this one item of taxes alone represents one-third of the difference between the rail and the water rates. Part of the money which a shipper by railroad pays is used for taxes. The shipper who ships by a Federal Barge Line pays no taxes.

Federal Barge Line a Financial Failure

"Since 1924, the Federal Barge Line has failed by $7,000,000 to earn a return equal to a fair interest rate upon its investment and for taxes. In addition, it has failed by $39,000,000 to earn its share of the burden of the taxpayer in providing and maintaining the waterways upon which the Federal Barge Line operates. The total revenue of the Federal Barge Line, since its inception, has been about $45,000,000 and the total cost of the taxpayer has been about an equivalent amount; and the total cost of transportation by the Federal Barge Line has been much greater than the total cost of moving the same amount of material by railroad."

* * *



Great Northern Pneumatic-Tired Inspection Car—A Ford V-8 Sedan Equipped with Firestone Rail Tires, Shown Being Removed from Track by Means of Hydraulic Turn-Table

Communications . . .

This Happened on a Railroad

South Omaha, Neb.

To the Editor:

Referring to article in *Railway Age*, January 7, page 22, headed "Would This Happen in a Bus Office?"

Having been a railroad employee for 42 years, I cannot allow this impression to prevail. The lack of service referred to may have occurred, but I am satisfied it is not a general practice.

Some time ago I wanted my sister, living in Los Angeles, to visit my family, and through the city ticket agent of the Union Pacific Railroad at Omaha, I purchased a round-trip ticket for her, as well as having the Pullman reservation from Los Angeles made here, and the tickets were delivered to her home without any additional charge.

In fairness to the railroads I hope you will give this as much publicity as you have the first named article.

H. C. Rosacker,
Purchasing Agent,
Union Stock Yards Company of Omaha.

A Suggested Way to Lower Passenger Fares

Chicago.

To the Editor:

As a practical step toward the requisite price lowering for coach service, it is suggested that a modified use be made of the successful German Netzkarten or district cards. The whole German territory of railroading is divided into 16 nets. Every net or district covers 6,000 km. of railroad tracks. The price of a netcard for one person for one month is Mk. 100 (third class), 2 netcards or a card good for two nets for one month cost Mk. 160. If the same person takes 3 or more cards each costs Mk. 40. With these cards he can ride on almost any train. If he buys netcards every month without interruption, there is a reduction for the second card of 40 per cent, and for the third card and subsequent cards in series of 60 per cent.

The application of the above principles and precedents would be to divide the American railroad territory into a definite number of nets, each of which would be defined not by an equal number of miles of trackage, but by equal economic conditions within their respective boundaries. The southern net would be so circumscribed as to comprise a territory where there is a given average cost for hauling one passenger over a mile of distance, and wherein the actual cost for such service nowhere departs from this general average by more than a given small percent. The eastern net would have a similar homogeneousness. In fact, several eastern nets would be required to subdivide the territory properly.

All of these nets would thus be based on truly economic groupings, and not on arbitrary or theoretical grounds. But no net would consider in the least the factor of corporate identities within its bounds. In one net might be found only one road; in another a dozen different railroad companies might be operating. But the figures for the economic average would be supplied by the companies from their ledgers and cost sheets, and not dictated by governmental opinion. Then, apply to all the nets a public sale of cards, insuring mass consumption at reduced prices. The same percentages of reductions would be granted the country over under government control. But the actual cost of passenger travel in each net would be different from that in other nets because the uniform percentages of price reductions would be computed in each case on a different base figure which we may term the economic constant for that particular net.

Here you have a simple, practical and equitable program, which does justice both to the economic needs of the respective railroads and to the public welfare as supervised by the government.

Above all, this plan allows the inauguration of the price reduction policy on terms which encourage and even guarantee more traffic. If, in addition to this sale of netcards to individuals, the sales to corporations for the use of their agents and employees were followed, there would be a still greater stimulation of business, and as the corporate sales would cover a year's use of transportation there would be available much ready money out of which to finance the many needed improvements in coach service. The sales to corporations could follow the net system above outlined, with provision for transfers from net to net.

A single clearing-house for the exchange of netcards and stubs or receipts could be set up at small cost, and through this one central office comparable to a bank clearing house the funds payable to each railroad could be promptly allotted and differences in net rates equated.

Ultimately, there should and must be a general passenger fare reduction on all roads for single passages, regardless of mass or continuous use of the carriers by the individual. But the above program may serve to open the way to such reductions, and after a general reduction has been made on one-trip buys, there should be offered the additional reductions for quantity purchases outlined above. If the netcards carried a yearly time extension, they would be attractive to nearly everybody because most people do some rather extensive traveling at vacation times; and once in their possession these cards would be a continual temptation and invitation to use railroad transportation for many trips which would not otherwise be taken at all, or which would be taken by bus or automobile.

P. T. Lindner.

Railroads Fail To Utilize Modern Advertising Methods

Flushing, N. Y.

To the Editor:

For years the railroads have complained of lack of support by the public. In fact, they have been in bad with the public, and still are. Just how much they are to blame for this situation is a moot point. It is a fact, however, that the railroads have never taken advantage of the opportunities offered by modern advertising. Proper use of these opportunities would build not only institutional prestige, but would undoubtedly tend to increase traffic as well.

What picture is formed in the mind of a man or a woman by the word "railroad"? Not a sharply defined picture, we may be sure, but a jumble of tracks, stations, terminals, trains and blue uniforms. Yet any railroad is vastly more than this. It is also cities, mountains and watering places, and factory sites, shifting scenery, fascinating outings, long afternoons with a book one never had time to read before, savory meals in the dining car, a particularly attentive porter or conductor, and all the minutia of travel.

My suggestion is that the individual railroads advertise, in their larger centers of population, in a rather personal manner and with supporting data, such items as these: The principal trains; resorts and industrial towns; fast transportation as compared with automobile and bus; avoidance of traffic and wear and tear of automobile driving in heat, cold and rain; excursion offerings and the savings over regular rates, and the time-saving over the automobile; personalities of certain functionaries, from Pullman porter to president; financial facts of interest to the public. Improvements to property and service, including roadway and trackage, station facilities, cars, seats, and even such seemingly trivial conveniences as having the windows capable of being opened in summer and clean in winter.

Here is a simple, human, dignified and not too expensive method of appealing to the public. The American Telephone & Telegraph Co. has been using it for years. A. T. & T. is a monopoly comparable only with the United States Post Office Department. Yet it advertises steadily, gently but cumulatively. Consistently it dwells on the theme of service, the one quality that justifies its unique status.

Some day the railroads may be a monopoly—government or private? Why not pave the way to the latter eventuality by each railroad or system selling the excellence of its service and the humanness of its organization and viewpoint? This enlightened procedure, moreover, will increase traffic.

Alden W. Welch.

Odds and Ends . . .

A City Within a City

The St. Lazare passenger station in Paris, France, contains within its environs all the features of an ordinary city except a church. The attractions which have been most recently added to the station are an art gallery and a lecture hall. It already had a moving picture theatre, a terrace cafe and a department store. The art gallery is devoted to paintings, photographs and sculpture of subjects in Normandy, Brittany and Vendee, the principal provinces served by the State railways. The lecture hall is for passengers who want to know something about the provinces they are going to visit.

A Canine R. F. D.

Passengers on the Chicago-bound Hawkeye Limited of the Illinois Central are usually attracted by the antics of a large collie dog which appears every day alongside the track in the open country about half a mile west of Burlington, Ill. As the train approaches, the dog emerges from the yard of a farmhouse some distance from the track and, racing at full speed, reaches the railway right-of-way just as the observation car is passing a point opposite his home. Barking vociferously, the dog runs along the side of the train until the flagman steps to the rear platform and throws out a rolled copy of a Chicago newspaper. The dog catches the paper in his mouth, stops and watches the train for a moment or two and then trots back to the farmhouse carrying the newspaper. "Shep," as the dog is called, belongs to the owners of the farm, Mr. and Mrs. Patrick Waughon. Mrs. Waughon is the daughter of a former conductor on the Hawkeye Limited. "Shep" knows the difference between freight and passenger trains and he never bothers with any except the eastbound Hawkeye Limited. If the train is late, he becomes nervous and excited and runs back and forth from the house to the gate, being reassured only when he hears the whistle.

Strangers to Train Travel

While talking to newspaper reporters at Dallas, Tex., a few months ago, George C. Smith, general traffic manager of the Missouri-Kansas-Texas, said that one of the reasons why the railway was running popular-price excursions was to educate young people to the comforts of train travel. At least 30 per cent of the present younger generation, he said, had never been on a train, and therefore accepted the discomforts of automobile and bus travel as a matter of course. The statement received wide publicity, and in the case of an instructor in a Texas college, it apparently aroused some skepticism. The instructor decided that she would check up on it. Accordingly, she put the question, "Have you ever ridden on a railroad train?", to all the students at the college, with results which surprised her but not Mr. Smith. Replies were not received from the entire enrollment of the school, but of the replies which were received, 25.9 per cent answered the question in the negative. Mr. Smith's estimate of the number of young people who are not train-conscious seems to have been borne out still further by the results of similar surveys made in two grade schools. In one, 70 per cent of the pupils had never ridden on a railroad train, while in the other, 45 per cent had never had this experience.

Air-Conditioning? Old Stuff!

The popular impression is that air conditioning is something pretty new, but evidence that there is nothing new under the sun—not even air conditioning—is to be found in an item entitled "Cooling and Ventilation of Railway Carriages," which was published in Popular Science Monthly in June, 1872. The story which has been brought to our attention by an unidentified correspondent, reads as follows:

"An ingenious contrivance for excluding dust and cooling the air of railway carriages in hot countries is described in a late number of 'Engineering.' It consists of an arrangement attached to the underside of the carriage, into which air is admitted and made to pass between layers of material that are kept constantly wet by a supply of water from above, and that present a large evaporating surface. By this means, all dust is arrested in the chamber, and the air is cooled before it enters the interior of the carriage. The windows of the car are so arranged that thorough ventilation is secured and the accumulation of moisture prevented. The appliance is now in use on several railways in India and is found to be of great value. The average reduction of temperature secured by it is about 15 deg. F., with an evaporation of six gallons of water per hour. With a larger amount of water, it is said that a reduction of 30 deg. may be readily obtained."

Superstition Triumphs

For years, the Chicago & North Western has boldly defied superstition by designating, in timetables and on train boards, its premier Chicago-Denver train, "The Columbine," as train No. 13. But Old Lady Superstition has finally had her way. On February 19, the "unlucky" number of "The Columbine" was dropped, and from that day the train has carried the innocuous designation of No. 11. R. Thomson, passenger traffic manager of the North Western, says that many complaints have been received in the past from travelers who were a bit hesitant about riding on a train No. 13. The management—which is not putting anything in the way of more traffic—decided to give Fate a chance in 1933 and to try a less "unlucky" number for a change.

Maxey's Last Story

This department will miss T. T. Maxey, who died a short time ago. As the special representative of J. M. Davis, president of the Delaware, Lackawanna & Western, he supplied us with innumerable interesting items about the Lackawanna, and though there were more than could possibly be published, all were so good that it was difficult to turn down any of them. Mr. Maxey was particularly assiduous in paying tribute to retired veterans of the railway. He ferreted out interesting facts about all the men who went on the Lackawanna's "Honor Roll," sending the stories to us and to other newspapers. There were so many of these, in fact, that it became cause for comment around the *Railway Age* offices when the "Odds & Ends" page appeared without one of the Maxey veteran stories. It is with mixed feelings, therefore, that we present what we believe to be Mr. Maxey's last publicity story to make the front pages of the New York newspapers.

It is the story of the cat "Betty," one of the official mousers at the Lackawanna terminal in Hoboken, N. J. The plain facts of the story are as follows: When the Lackawanna Limited was pulling out of Morristown, N. J., one Sunday morning in January, a large grey cat was observed curled up on one of the trucks of the third car from the locomotive. There was no time to remove it before the train left Morristown, but word was sent ahead to Dover, eight miles distant—a flag stop for the Limited—to look for the cat. Upon the train's arrival at Dover, the cat was found in its original position none the worse for wear. Apparently, the cat enjoyed the trip, as considerable coaxing was necessary to persuade it to terminate its ride. Later, the identity of the cat as the property of General Stationmaster Henry Byrnes of the Hoboken terminal was established, and arrangements were made to return the cat to its owner at Hoboken on the first eastbound passenger train.

That was the simple story which Mr. Maxey took in hand. It was only a few hours until the drums of publicity began to beat. The sedate New York Times gave more than half a column to the story the next morning, supplementing this the following day with an even longer story about the return of rod-riding "Betty" to her owner. The New York World-Telegram went still farther. The Lackawanna cat story made the World-Telegram's front page on Monday evening, and the gripping tale related by a staff writer of the newspaper was embellished with a photograph of "Betty" reunited with her family.

Putting the Lackawanna on newspaper front pages was one of Mr. Maxey's important jobs and one in which he was markedly successful, as evidenced by the cat story, right up to the end.

NEWS

I. C. C. Gets $7,137,639 for the Fiscal Year 1934

Appropriation is only $10,921 less than present year's but is $2,000,000 under 1932

The amount of the Interstate Commerce Commission's appropriation for the fiscal year 1934 was fixed at $7,137,639 when the Senate on February 23 passed the independent offices appropriation bill without change in this item from the figure allowed by the House, which was that recommended by the Bureau of the Budget. The amount is only $10,921 less than was appropriated for the present year but it is a reduction of approximately $2,000,000 as compared with the appropriation for 1932, which means that it will be necessary to make more or less permanent some reductions in force which were made on a temporary basis through furloughs during this year.

The only debate on this item of the bill in the Senate came on an effort by Senator Dickinson, of Iowa, to reduce the appropriation for valuation from $2,313,542 to $1,750,000. Senator Dickinson said the commission had repeatedly promised to "complete" the work and cited the recommendation of the National Transportation Committee that the policy of trying to allow the railways a fair return on an appraised valuation should now be reconsidered.

The amendment was defeated without a roll-call, after Senators La Follette and Couzens had insisted on the amount allowed in the bill. Senator Couzens particularly wanted the commission to go ahead and ascertain the present-day valuation and not leave the figures on the basis of the high reproduction costs of pre-depression years; and he insisted that valuations would be needed if the government is to make further loans to railroads or in connection with railroad reorganizations. He said that in his judgment, if Congress adjourns without passing legislation to set up a plan for reorganizing "the railroads", it will mean millions of losses through the Reconstruction Finance Corporation loans. "In other words," he said, "there seems to be no sentiment for discontinuing loans to the railroads until Congress has set up an efficient and more practical manner of reorganizing them." President Hoover had urged enactment of the bankruptcy bill as necessary to permit "a certain minority of railroads to be so reorganized as to reduce fixed charges and thus relieve the Reconstruction Finance Corporation of drains in prevention of destructive receiverships." Senator Couzens said there must be somebody with judgment to fix a valuation "between the low point of to-day and the high point of 1928 and 1929." Senator King, of Utah, joined in the attack on the valuation item, while Senator Fess, of Ohio, objected to the idea of considering the valuation bureau a permanent institution.

Lower Coal Rates in Kentucky To Meet Competition

Railroads operating in Kentucky have been granted permission by the State Railroad Commission to reduce rates on coal from the Harlan and Hazard fields to principal markets to compete with motor trucks. Tariffs in connection with these rates must be limited to six months.

I. C. C. Still Looks for Excess Railway Income

The Interstate Commerce Commission has issued its usual annual order to the railroads to report to it any recapturable excess income for the year 1932, accompanied by the forms on which to make the reports if there are any companies still eligible to do so.

Central Railway Club

The Central Railway Club of Buffalo (N. Y.) will hold its next meeting on Thursday evening, March 9, at Hotel Statler, Buffalo. W. P. Borland, chief of the Bureau of Safety, Interstate Commerce Commission, will present a paper on Federal Regulations to Promote Safety on Railroads.

Chart of Railroad Inter-Relationships

Robert A. Burrows, financial analyst of railroads and public utilities, Koppers Building, Pittsburgh, Pa., has published a comprehensive chart showing the interrelations of railroads and their ownership of each other's securities. The chart shows groupings in accordance with the latest known inter-ownership of voting stocks. The system headings follow those of the Interstate Commerce Commission's 1929 consolidation plan and independent roads having no leases or substantial voting interest now held by other roads are grouped with the system to which they are assigned under the modified I. C. C. plan. The chart also shows roads in the hands of receivers, capitalization, operating ratio, earnings in relation to fixed charges, and similar data for each road.

General Atterbury Gives Views on the Depression

P.R.R. president advocates uniform transport regulation for all types of carriers

Gen. W. W. Atterbury, president of the Pennsylvania, testified on February 25 before the Senate finance committee which is holding hearings on the causes of and remedies for the depression. Making it clear that he was appearing at the request of the committee and expressing his personal views, General Atterbury said that there is "no panacea for a resumption of prosperity except the slow, painful one of hitting the bottom and then slowly building up with a sane and economical foundation on which to build; but he advocated reduction in government expenses, abolition of the capital gains tax, and real balancing of budgets. He said the government should stop making capital expenditures of any kind except those that show a reasonable return on the investment and that the anti-trust laws should be materially modified because "competition is now working industry's own destruction."

"Our system of national and state regulation of transportation should be restored to its original purpose", General Atterbury said. "That was to secure just and reasonable charges for transportation and to prevent special rates, rebates, etc.—the primary object being to avoid unjust discrimination in the rendition of like service under similar circumstances and conditions. The public interest should at all times be fully protected, but there ought to be a minimum of regulatory interference with the discretion of management. The same form and measure of regulation should be applied to all other forms of transportation, not because of the railroad situation, but to protect the public. This having been done, the railroads will then be in a position to co-ordinate their services and by such co-ordination the public will be served by the form of transportation best suited to its convenience and necessity. If under these conditions the railroads cannot survive they will have to suffer as have all other obsolete methods in our advancing civilization.

"My prophecy is that much of our branch line railroad mileage will be abandoned and that the truck and bus will find their useful places, as will also aviation; and that after that has been done the railroads will themselves be in a far healthier position and the public will be profiting by having at its command the best form of transportation service."

Railway Bill Passed By Dominion Senate

Compulsory arbitration feature retained despite protest of Canadian Pacific

A three-day debate in the Canadian Senate last week was necessary before the motion for third reading of the bill to give effect to the Duff Commission report on reorganization of the Canadian National and on co-operation between that road and the Canadian Pacific for economy was adopted. The fight against the bill, which was initiated before the Senate committee by President E. W. Beatty of the Canadian Pacific, was carried into the Senate by at least three prominent members, Senator James Calder, of Saskatchewan, Sir Allen Aylesworth of Toronto, and Senator A. D. McRae of British Columbia. The first of these three moved an amendment to the motion for third reading, calling for deletion of the third part of the bill which calls for the establishment of the Arbitral Tribunal to adjudicate any disputes between the two roads on questions of economic co-operation. The amendment was defeated without a roll call, and the main motion for third reading carried in the same manner, without a roll call.

The bill has been transmitted to the House of Commons where it will first be dealt with in the House Committee on Railways, Canals and Telegraph Lines. This is a large committee, composed of nearly 100 members. Because of the size of the committee it is expected that discussion of the bill will occupy considerable time, although there is not likely to be the same strong opposition to it as in the Senate.

Senator Arthur Meighen, Government leader in the Senate, speaking late last week near the end of the debate on the motion for third reading, and answering the attacks of Senator Calder and Sir Allen Aylesworth, said, in part, as follows:

"The honourable senator for North York (Hon. Sir Allen Aylesworth) affirms that we are unfair to the Canadian Pacific in managing this as a national system. I have always felt that it would be very difficult for the state to manage its own system, and manage it fairly, competing as it does directly and at every point of contact with the private system. The duty was upon the government of the day and those they chose to assume the burden of management to see to it that the road was so conducted as to relieve the country of the charge of unfair operation as against the private system. Economical operation would have been the way, and I believe that if the management in control up to the end of 1922 had been retained in control we should have had that economical operation.

"We must call attention to the report of the Royal Commission. That report, not merely in one paragraph, but in at least a dozen pages, attributes a share of the responsibility for the present situation to the Canadian Pacific. What has happened has been due, not to a lack of capacity on the part of the Canadian Pacific's management, but to an absence of provision for co-operation on a fair basis. When there is no such provision, the company that stands to reap the greater benefit from any proposed scheme is the one that is the more insistent to have it put into operation. The other company hangs back, realizing that it will be pursued, and it strives continually to drive a harder and harder bargain."

"The Pacific Company," said Senator Calder, "In the past has of necessity had to borrow huge sums of money. Where did it get them? By far the greater proportion of its securities—probably 80 to 90 per cent—including its preference shares, its bonds and debentures, and its treasury notes lies in the vaults of England. It has been the constant, fixed policy of the C.P.R. to place its borrowings as far as possible in that field. On the other hand, the British investor over a period of some forty years has had the greatest confidence in the security of investments in the Pacific Company, and in its sound business management. By this bill, as I see it, we propose to impair seriously, if not to destroy, that confidence. We should not be led astray by any argument to the effect that the operation of Part III of the Bill can only result in good to the C.P.R. It cannot be disputed that Part III does take out of the hands of its management many matters over which it now exercises full control."

Intercoastal Regulation Bill Passed

The House on February 27 passed under suspension of the rules the bill which had previously passed the Senate, S. 4491, providing for a degree of regulation by the Shipping Board of the freight rates of water carriers operating through the Panama canal in intercoastal service. It does not provide for any fixing of rates by the board but requires that rates shall be published and filed with the board, not to be changed without 30 days' notice; except that the board in its discretion may for good cause allow changes on shorter notice just as the Interstate Commerce Commission does with railroad rates.

Increased Watermelon Rates Approved in Part

The Interstate Commerce Commission has found justified a proposed revision of freight rates on watermelons, in carloads, between points in southern territory and central territory, on the basis of 30 per cent of the corresponding first-class rates, in lieu of present commodity rates, but has ordered canceled the proposed rates to points in New England, Trunk Line, and Buffalo-Pittsburgh territories without prejudice to the filing of schedules containing rates on the basis of constructive first-class rates somewhat higher than the key rates. This is with a provision that the rates from the border points between official and southern territories through which the traffic actually moves may be applied as minimum rates from points in southern territory. The report stated that the rate level on watermelons within the South would be materially increased.

Bill Passed Authorizing I. C. C. To Delegate Work

Commission has been advocating such permissive legislation for several years

The bill to authorize the Interstate Commerce Commission to delegate portions of its work to individual commissioners or employees, which had been passed by the House, was favorably reported to the Senate on February 24 by the committee on interstate commerce, after its purpose had been explained to the committee in executive session the day before by Commissioner Eastman, and was passed by the Senate without debate on February 25. The commission has been urging such authorization for several years but little progress was made until the proposed law was amended to provide that the authority shall not extend to contested proceedings, involving the taking of testimony, without the consent of the parties.

The purpose of the bill is to enable the commissioners to concentrate their attention upon the larger or more important questions of policy and practice, and that their time be freed, so far as possible, from the consideration of the multitude of the smaller and less important matters of detail, which under the present law, require action by at least a division of commissioners. In explaining the bill before the House committee recently Commissioner Eastman said that this authority was not sought "for the purpose of escaping from work, but so that they can do better work," and that it would afford more opportunity for oral argument before the body rendering the decision in the first instance. He also pointed out that it would enable the commission to expand its work very materially, if that should become necessary. Since that time plans have been under consideration among the associates of the new President for a considerable degree of such expansion. It has been proposed that the commission shall organize various boards of employees for the initial decision of cases, with instructions to refer, in their discretion, to a division of the commission any cases which seem to them to be of importance from the standpoint of principle; and to assign various duties, apart from the decision of cases that are now handled by divisions, to individual members of the commission for action. This is expected to expedite the handling of the commission's work generally.

Under the provisions of the bill any order, decision, or report made, or other action taken, by any such individual commissioner or board in respect of any matters so assigned or referred shall have the same force and effect, and may be made, evidenced, and enforced in the same manner as if made or taken by the commission; but any party affected may file a petition for reconsideration or for rehearing by the commission or a division thereof and any action by a division upon such a petition shall itself be subject to reconsideration by the commission.

The bill was signed by President Hoover on Wednesday.

January Locomotive Shipments

January shipments of railroad locomotives from the principal manufacturing plants, as reported to the Department of Commerce, totaled two locomotives as compared with six in December and none in January, 1932. The two locomotives involved in the January shipments were electrics as were the six shipped in December.

Unfilled orders at the end of January totaled 71 locomotives—one steam and 70 electrics—as compared with unfilled orders at the end of December for one steam and 72 electric locomotives.

New York Railroad Club Meeting

Air conditioning of railroad equipment will be the topic of discussion at the meeting of the New York Railroad Club on Friday evening, March 17. The program has not been completed, but among the speakers will be the following: J. S. Tritle, vice-president and general manager, Westinghouse Electric & Manufacturing Company; A. R. Walker, electrical engineer, Illinois Central; and S. M. Kintner, vice-president in charge of engineering, Westinghouse Electric & Manufacturing Company.

Season Commutation Tickets on D. L. & W.

For the convenience of its regular commuters, the Delaware, Lackawanna & Western has placed on sale season commutation tickets covering transportation for six or twelve consecutive calendar months between New York and suburban stations in New Jersey. There is no change in monthly commutation rates—the six months tickets are sold at six times the regular monthly commutation ticket rate and the 12-months tickets at 12 times the monthly rate—but the season tickets do not require punching and, within their time limits, are good for unlimited travel between the points for which they are issued.

N.R.A.A. Reduces Dues

At a meeting of the board of directors of the National Railway Appliances Association at Chicago on February 21, it was decided to reduce the dues for the year beginning March 31, 1933, to $50, and to return to the members their checks for $100 which they had previously tendered to insure the continuance of the organization. This reduction in dues had been made possible by reductions which have been effected in expenses for storage of equipment, insurance, office space, etc., as well as the temporary elimination of the salary of the secretary-treasurer, proposed by him. Through this plan, the continuity of the organization will be maintained and its charter and exhibit equipment protected.

Rock Island Division Bulletin Succeeds Magazine

The value of employee magazines is demonstrated by the action of the employees on the El Paso-Amarillo division of the Chicago, Rock Island & Pacific who, following the discontinuance of the system magazine, have undertaken to publish a monthly magazine themselves. This magazine, which is mimeographed, contains pencilled illustrations and includes articles devoted to improving service as well as news and personal items. The contents of the February issue, covering eight pages, consists of articles on fuel conservation, maintenance of way, safety, "use the rail clubs" and timely topics, as well as items regarding meritorious service."

Reduction In Rates On Fruits and Vegetables Asked

An appeal for a voluntary reduction in freight rates on perishable farm products was made last week to the chief executives and chief traffic officers of important railroads by the National Fruit and Vegetable Transportation Committee, representing the American Fruit and Vegetable Shippers' Association, the International Apple Association, National League of Commission Merchants of the United States, and the Western Fruit Jobbers' Association of America. Members of these four organizations are said to handle 95 per cent of the rail shipments of fresh fruits and vegetables, which in a normal year are in excess of one million carloads. The appeal is based on data calculated to show that freight rates now are absorbing practically the entire market value of these perishable food commodities. This, the petitioning interests assert, threatens with collapse the fruit and vegetable industry.

Southern Prepares for Northbound Travel from Florida

To attract northbound travel from Florida the Southern has installed reduced-fare coach rates which became effective February 15 to expire May 31. Examples of these reduced passenger rates which apply for coach travel only are listed in a recent folder in which the Southern also calls attention to the schedules and consists of its several Pullman-equipped trains operating between Florida and North and West points.

Under the reduced rates coach passengers may, for example, travel from Jacksonville, Fla., to Washington, D. C., for $18.94; to Chicago for $25.97; and to Cincinnati, Ohio, for $19.68. Stop-over privileges are extended in connection with these reduced-rate tickets.

Passenger traffic officers of the Southern anticipate that northbound passenger traffic from Florida this year will be approximately the same as last season.

North Western's Casualty Rate is 1.99

The Chicago & North Western, which was awarded the National Safety Council's plaque for the best safety performance among employees in 1930 and which in 1931 also had the lowest casualty rate among the carriers in group A, will again contend for the award, with a casualty rate of 1.99 for 1932. This rate compares with 1.59 for 1931. In 1932, 117 employees were killed and injured, as compared with 129 in 1931, while the man-hours worked totaled 58,902,000 in 1932 and 81,125,027 in 1931. Of the 36 passengers injured, only 2 were hurt in train accidents and these 2 were only slightly bruised. The others were injured in getting on or off trains or about station premises.

The number of persons killed in crossing accidents fell from 60 to 52 and those injured from 112 to 82. The North Western is conducting an educational campaign among automobile drivers. It is extending the whistle cord to the fireman's side and has prescribed special whistle precautions in an effort to further reduce these accidents.

British Train to Be Exhibited in America

The London Midland & Scottish of Great Britain plans to send its famous train—the Royal Scot—to the United States for exhibition at the Chicago Century of Progress Exposition, which opens June 1; this will be the first time that a complete British train has ever been shown in this country.

Prior to its display at the Fair, and again at the close of the exhibition, the train will make extensive tours, visiting the principal cities in the eastern half of the United States and Canada. At each place the train will be placed on free public exhibition.

In 1893 a locomotive, the "Queen Empress," and two passenger coaches were shown by the London & North Western, now part of the L. M. S., at the World's Columbian Exposition held in Chicago in that year. The locomotive of the train to be sent this year will be the "Royal Scot" No. 6100. There will be eight cars in the train; third class corridor, third class vestibule, electric kitchen car, lounge car, third class sleeping car, first class sleeping car and others.

The American railroads that will cooperate in the tour are the Baltimore & Ohio, the Boston & Albany, the Central of New Jersey, the Illinois Central, the Louisville & Nashville, the New York Central, the New York, New Haven & Hartford and the Pennsylvania.

Co-Ordination of Federal Transportation Policies Needed

In the much-debated proposed reorganization of the federal government a most important step would be to provide some agency which will give unity to the national policies in transportation matters, said Henry I. Harriman, president of the Chamber of Commerce of the United States, in an address on February 20 before a traffic group at Birmingham, Ala. At present, said Mr. Harriman, many different branches of the federal government have a share in planning or controlling our transportation system. The Interstate Commerce Commission, the Shipping Board, the Bureau of Public Roads, the Department of Commerce, the War Department and the Post Office Department all have a part. Standing behind these administrative agencies, and in the last analysis controlling their policies, are several committees of Congress having to do with transportation. In the House at least six committees and in the Senate four committees deal with its different phases.

"It is a striking fact that nowhere in our federal government, except in the whole body of Congress, do we find an agency which has within its scope all of the im-

(*Continued on page 348*)

Operating Statistics of Large Steam Railways—Selected Items for the Month of December, 1932,

Region, road, and year	Average miles of road operated	Locomotive-miles: Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross. Excluding locomotives and tenders	Ton-miles (thousands): Net. Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany.....1932	402	120,109	124,177	7,637	2,841	65.8	150,395	49,365	64	48	42.5	12
1931	402	136,187	142,510	8,983	3,285	65.2	173,685	57,243	74	60	44.9	18
Boston & Maine.....1932	2,056	245,680	277,466	24,386	7,698	65.1	428,270	153,519	135	154	53.4	31
1931	2,063	283,994	319,724	29,873	8,763	66.1	471,716	169,393	163	127	43.7	28
N. Y., New H. & Hartf. ..1932	2,045	324,257	390,321	21,209	9,473	64.0	525,055	194,745	213	140	39.7	17
1931	2,065	366,187	432,848	22,869	11,073	63.4	600,877	216,503	235	106	31.1	13
Great Lakes Region:												
Delaware & Hudson.....1932	848	207,428	275,204	30,082	6,177	57.9	404,801	181,590	253	25	8.9	154
1931	848	232,618	299,544	31,416	6,971	57.6	453,357	201,448	251	24	8.7	141
Del., Lack. & Western.....1932	998	323,898	357,923	46,312	9,508	63.2	562,376	217,493	206	61	22.9	57
1931	998	343,683	374,797	42,315	10,424	65.9	598,090	236,690	214	60	21.9	43
Erie (incl. Chi. & Erie)....1932	2,316	601,004	624,603	48,707	22,869	60.0	1,468,875	565,946	305	182	37.3	95
1931	2,316	606,450	632,949	47,720	24,298	60.1	1,487,543	547,927	374	118	23.9	128
Grand Trunk Western.....1932	1,023	179,943	182,415	2,414	4,227	59.7	256,782	87,244	88	65	42.5	24
1931	1,021	202,134	203,705	1,459	4,816	60.0	288,470	98,709	103	46	30.9	35
Lehigh Valley.....1932	1,343	359,864	376,812	32,302	10,228	62.7	632,025	255,197	182	138	43.2	21
1931	1,343	384,920	402,831	33,017	10,701	62.3	655,604	264,123	219	117	34.8	38
Michigan Central.....1932	2,039	346,647	347,061	9,616	9,747	58.8	587,674	196,853	123	80	39.3	32
1931	2,115	365,115	366,133	7,074	10,610	59.7	624,877	208,448	145	78	35.2	54
New York Central.....1932	6,279	1,386,487	1,478,468	98,444	46,001	57.8	2,986,459	1,200,265	570	633	52.6	25
1931	6,096	1,460,840	1,575,984	86,982	51,329	60.6	3,163,582	1,267,514	741	637	46.2	199
New York, Chi. & St. L. ..1932	1,661	431,603	440,398	4,500	11,849	59.8	709,226	245,571	125	115	48.0	27
1931	1,660	433,598	440,627	1,379	12,901	59.1	761,396	258,158	173	76	30.6	65
Pere Marquette.....1932	2,286	317,197	324,930	4,673	6,597	56.9	446,644	173,224	126	48	27.8	18
1931	2,241	296,665	303,303	2,643	6,972	58.7	438,521	163,424	143	32	18.2	43
Pitts. & Lake Erie.....1932	236	51,419	53,185	2,236	1,979	57.4	166,604	92,094	29	56	65.7	6
1931	235	55,387	56,451	412	2,257	57.4	184,800	101,529	56	25	30.8	33
Wabash 1932	2,461	483,219	495,932	9,932	13,164	62.7	751,367	254,341	180	182	50.2	28
1931	2,497	512,173	526,034	8,375	14,584	61.7	836,447	270,803	249	120	32.5	62
Central Eastern Region:												
Baltimore & Ohio.....1932	6,283	1,228,278	1,445,982	138,559	31,091	58.1	2,156,432	936,628	806	561	41.0	226
1931	6,270	1,318,617	1,496,484	154,344	35,323	58.0	2,423,260	1,044,661	967	387	28.6	302
Big Four Lines.....1932	2,787	612,621	635,016	17,818	15,922	59.1	1,098,840	512,536	268	181	40.3	11
1931	2,790	593,355	612,488	16,076	16,564	60.1	1,100,653	505,263	269	187	41.1	47
Central of New Jersey.....1932	692	145,513	158,922	24,893	4,322	54.6	316,998	150,201	117	61	34.5	58
1931	692	166,686	179,698	25,338	4,687	54.9	329,870	148,756	124	54	30.3	48
Chicago & Eastern Ill. 1932	939	182,836	183,182	3,567	3,357	58.4	240,950	107,980	68	96	58.8	23
1931	939	176,031	176,167	2,607	3,685	59.0	250,543	107,953	90	68	43.1	42
Elgin, Joliet & Eastern.....1932	447	66,118	67,268	1,393	1,351	55.2	112,099	53,980	76	13	14.9	33
1931	447	81,015	82,835	1,943	1,760	55.4	144,520	69,756	86	5	5.5	28
Long Island.....1932	396	32,507	33,567	13,164	310	51.6	24,166	9,600	34	13	27.1	7
1931	400	38,055	39,353	13,092	362	51.3	28,377	10,430	45	6	12.7	7
Pennsylvania System.....1932	10,528	2,461,071	2,767,327	281,414	76,239	59.7	5,195,806	2,268,492	1,831	678	27.0	766
1931	10,628	2,660,400	3,001,155	297,590	85,394	60.2	5,718,178	2,461,503	2,233	314	12.3	972
Reading 1932	1,454	404,711	433,958	44,724	10,079	56.4	772,265	370,314	294	92	23.9	115
1931	1,451	452,983	486,430	46,144	11,461	56.4	854,222	400,596	320	92	22.2	87
Pocahontas Region:												
Chesapeake & Ohio.....1932	3,136	776,632	817,267	27,703	30,289	53.8	2,623,783	1,414,220	518	155	23.0	210
1931	3,106	775,178	810,625	25,870	27,908	55.1	2,350,098	1,252,900	585	118	16.8	276
Norfolk & Western.....1932	2,223	551,800	573,367	25,967	18,637	58.9	1,547,347	827,853	415	59	12.5	183
1931	2,258	551,212	582,133	25,254	18,259	58.9	1,497,037	781,847	453	30	6.3	195
Southern Region:												
Atlantic Coast Line.....1932	5,144	535,027	536,115	7,576	10,195	58.6	559,499	177,539	370	99	21.2	124
1931	5,144	600,245	601,175	8,564	11,730	58.5	639,424	199,188	398	91	18.6	104
Central of Georgia.....1932	1,900	181,460	182,188	2,419	3,369	66.0	184,851	66,437	91	52	36.0	2
1931	1,900	197,458	198,170	3,589	4,029	65.5	221,064	79,729	100	48	32.2	3
Ill. Cent. (incl. Y. & M. V.) 1932	6,658	1,295,660	1,307,397	23,815	27,315	57.6	1,925,715	805,197	660	284	30.0	22
1931	6,670	1,318,372	1,326,975	22,068	29,794	58.3	2,048,631	801,830	749	170	18.5	42
Louisville & Nashville.....1932	5,166	907,975	968,568	28,085	17,555	56.4	1,272,390	597,254	365	346	48.6	88
1931	5,262	940,339	991,919	26,024	18,557	57.8	1,293,950	594,232	506	199	28.2	171
Seaboard Air Line.....1932	4,376	448,459	464,364	4,416	9,844	60.6	589,506	196,943	246	44	15.2	39
1931	4,457	487,952	496,725	6,007	11,117	60.4	658,583	213,358	242	43	15.1	46
Southern 1932	6,612	1,026,730	1,037,422	17,106	21,093	63.1	1,202,301	444,234	750	209	21.8	250
1931	6,675	1,069,801	1,081,415	17,801	22,783	63.0	1,266,893	464,518	789	177	18.3	232
Northwestern Region:												
Chi. & North Western.....1932	8,443	831,193	875,865	20,373	18,575	61.7	1,134,643	371,502	610	218	26.3	223
1931	8,443	949,774	989,792	20,199	21,486	59.7	1,294,998	430,025	670	140	17.3	232
Chicago Great Western.....1932	1,463	202,491	202,952	14,837	5,511	58.6	346,815	123,118	64	40	38.2	4
1931	1,459	207,502	207,571	13,808	6,385	58.2	395,759	135,099	71	45	39.1	4
Chi., Milw., St. P. & Pac...1932	11,234	1,069,186	1,131,877	50,947	24,151	59.7	1,555,737	619,278	750	160	17.6	380
1931	11,265	1,179,865	1,238,412	58,672	28,127	58.4	1,789,865	684,623	764	152	16.6	368
Chi., St. P., Minneap. & 1932	1,714	200,820	206,906	8,661	3,585	64.5	217,101	85,904	145	25	14.6	81
Om. 1931	1,714	221,514	239,373	10,519	4,064	63.2	241,873	96,147	146	26	15.0	74
Great Northern.....1932	8,430	563,318	566,407	18,104	13,445	66.9	801,516	336,185	484	120	19.8	167
1931	8,311	562,204	567,154	17,555	15,210	67.6	883,063	377,427	478	133	21.8	143
Minneap., St. P. & S. St. 1932	4,314	332,757	334,861	1,019	5,523	65.8	308,473	125,000	138	46	24.9	14
M. 1931	4,325	339,339	342,527	2,611	6,344	63.2	351,252	133,576	142	60	29.7	30
Northern Pacific.....1932	6,397	454,196	476,329	26,585	11,329	66.7	670,754	279,243	390	140	26.3	101
1931	6,402	525,177	552,417	32,677	13,900	66.5	808,719	333,397	396	126	24.2	87
Oreg.-Wash. R. R. & Nav..1932	2,182	135,570	139,405	6,237	2,788	68.3	159,471	63,469	85	38	30.7	35
1931	2,219	152,070	158,305	10,471	3,348	66.2	203,088	84,479	109	18	13.9	50
Central Western Region:												
Alton 1932	952	174,896	175,403	1,003	3,105	55.3	212,073	71,978	59	43	41.9	11
1931	989	193,440	195,429	1,105	3,776	55.0	255,460	91,796	85	30	26.2	25
Atch., Top. & S. Fe (incl. 1932	11,589	1,242,298	1,320,941	51,378	29,217	60.2	1,801,190	570,320	681	262	27.8	258
P. & S. F.) 1931	11,622	1,320,479	1,412,439	56,556	33,912	60.9	2,086,111	699,809	729	196	21.2	273
Chi., Burl. & Quincy.....1932	9,198	1,034,380	1,061,228	25,939	22,990	59.3	1,401,894	607,854	479	123	20.4	64
1931	9,257	1,055,729	1,079,574	29,037	26,604	59.1	1,626,724	706,056	523	114	17.9	42
Chi., Rock I. & Pac. (incl. 1932	8,333	961,562	977,789	4,585	18,721	57.2	1,178,528	414,460	479	137	22.3	141
Chi., Rock I. & Gulf)....1931	8,343	1,028,012	1,048,319	5,317	21,385	57.9	1,326,774	470,771	521	142	21.4	138
Denver & R. G. Wn. 1932	2,514	186,470	205,132	25,474	4,759	61.4	298,696	120,029	190	40	17.4	45
1931	2,557	223,813	248,841	29,648	5,888	60.4	371,849	151,668	203	30	12.7	41
Los Angeles & Salt Lake...1932	1,236	147,540	160,130	17,509	3,878	62.9	221,731	77,806	77	28	26.6	16
1931	1,240	175,058	189,721	18,683	4,584	58.8	271,462	91,077	98	13	11.9	30
Oregon Short Line.....1932	2,457	231,749	237,857	11,876	5,480	62.2	344,585	136,586	150	36	19.2	68
1931	2,483	242,014	249,425	13,347	6,258	62.0	397,597	160,838	162	9	5.0	69
Southern Pacific-Pacific 1932	8,886	864,828	912,289	78,238	23,138	62.0	1,405,448	446,559	532	351	39.8	223
Lines 1931	8,935	984,006	1,049,512	91,570	27,192	63.3	1,648,991	562,879	621	299	32.5	245
Union Pacific.....1932	3,768	684,216	699,624	26,232	20,614	64.0	1,205,879	424,422	372	93	20.1	197
1931	3,768	732,249	747,396	28,406	25,222	62.7	1,490,320	527,857	415	40	8.7	197
Southwestern Region:												
Gulf, Colo. & S. Fe.....1932	1,943	184,915	186,851	2,760	4,034	63.3	244,874	95,236	98	27	21.4	31
1931	1,943	185,646	187,229	2,951	4,215	61.7	255,428	96,992	98	24	19.9	33
Mo.-Kans.-Texas Lines.....1932	3,282	341,327	342,619	4,071	7,557	59.4	457,729	160,809	153	71	31.7	73
1931	3,282	330,024	331,621	5,317	8,362	61.4	492,601	178,371	167	58	25.9	85
Missouri Pacific.....1932	7,385	1,071,269	1,100,770	25,578	23,117	57.7	1,510,733	553,485	452	128	22.1	162
1931	7,409	1,067,215	1,081,079	26,027	25,685	60.2	1,591,193	599,114	500	85	14.5	207
St. Louis-San Francisco....1932	5,193	586,091	588,733	5,466	10,702	60.9	664,668	263,302	400	74	15.6	156
1931	5,175	601,036	604,372	5,995	12,120	59.7	745,925	282,466	408	71	14.8	121
St. Louis Southwestern 1932	1,902	192,990	198,143	2,667	3,965	64.9	221,493	72,668	107	23	17.4	34
Lines 1931	1,902	193,817	194,874	2,623	4,058	56.9	249,458	77,320	117	28	19.5	46
Texas & New Orleans.....1932	4,586	449,530	449,584	5,183	8,236	63.6	476,723	156,683	222	83	27.2	50
1931	4,639	471,213	472,055	1,371	9,116	57.6	573,381	189,821	249	87	25.9	56
Texas & Pacific.....1932	1,946	236,473	236,491	1,731	5,804	55.1	378,013	115,821	192	55	22.5	65
1931	1,946	283,085	283,085	1,826	6,704	56.8	426,881	136,229	181	65	26.3	39

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Compared with December, 1931, for Roads with Annual Operating Revenues Above $25,000,000

Region, road and year	Average number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
New England Region:													
Boston & Albany.....1932	4,624	2,524	7,148	37.7	20,479	1,252	411	17.4	223	19.5	3,964	176	38.0
1931	4,131	2,908	7,039	19.3	20,470	1,275	420	17.4	262	23.1	4,596	175	36.5
Boston & Maine.....1932	11,100	6,340	17,440	21.7	23,508	1,726	618	19.9	281	21.6	2,382	116	33.7
1931	11,086	6,918	18,004	11.8	22,080	1,661	596	19.3	304	23.7	2,649	118	38.9
N. Y., New H. & Hartf. ..1932	16,985	9,836	26,821	8.5	24,354	1,619	601	20.6	234	17.8	3,072	126	37.5
1931	16,407	11,139	27,546	4.5	22,997	1,641	591	19.6	254	20.4	3,382	119	43.1
Great Lakes Region:													
Delaware & Hudson.....1932	11,200	2,224	13,424	4.5	25,672	1,952	875	29.4	436	25.6	6,907	127	35.4
1931	11,344	2,903	14,247	3.4	25,064	1,949	866	28.9	456	27.4	7,661	128	38.8
Del., Lack. & Western.....1932	18,766	3,685	22,451	10.2	24,569	1,736	671	22.9	312	21.6	7,029	163	48.9
1931	19,658	3,717	23,375	7.7	23,917	1,740	689	22.7	327	21.8	7,649	156	49.2
Erie (incl. Chi. & Erie) ...1932	36,274	10,608	46,882	5.7	37,309	2,444	942	24.7	389	26.2	7,883	113	44.6
1931	36,409	10,504	46,913	3.8	36,509	2,453	903	22.6	377	27.8	7,632	114	44.6
Grand Trunk Western.....1932	5,533	7,762	13,295	15.6	23,344	1,427	485	20.6	212	17.2	2,751	120	38.9
1931	4,903	8,096	12,999	9.2	24,817	1,427	488	20.5	245	19.9	3,117	110	44.6
Lehigh Valley.....1932	19,503	4,617	24,120	19.4	29,084	1,756	709	25.0	341	21.8	6,129	155	41.3
1931	22,680	4,916	27,596	10.3	27,763	1,703	686	24.7	309	20.1	6,344	157	41.8
Michigan Central.....1932	24,883	17,215	42,098	10.0	30,063	1,695	568	20.2	151	12.7	3,114	128	56.9
1931	26,554	15,838	42,392	6.7	31,497	1,711	571	19.6	159	13.5	3,179	121	53.9
New York Central.....1932	83,936	54,199	138,135	23.3	33,282	2,154	866	26.1	280	18.6	6,166	113	42.3
1931	81,460	64,685	146,145	14.5	32,825	2,166	868	24.7	280	18.7	6,707	109	38.9
New York, Chi. & St. L. ..1932	16,025	5,755	21,780	15.4	28,731	1,643	569	20.7	364	29.3	4,770	113	59.7
1931	16,332	5,685	22,017	11.8	28,985	1,756	595	20.0	378	32.0	5,016	110	57.4
Pere Marquette.....1932	13,881	4,706	18,587	2.7	24,387	1,408	546	26.3	301	20.1	2,444	106	61.1
1931	12,962	4,214	17,176	3.7	23,796	1,478	551	23.4	307	22.3	2,352	100	56.3
Pitts. & Lake Erie.....1932	17,505	6,260	23,765	25.3	47,385	3,240	1,791	46.5	125	4.7	12,613	122	21.0
1931	19,920	6,235	26,155	16.8	40,288	3,337	1,833	45.0	125	4.9	13,943	103	22.6
Wabash 1932	19,943	7,083	27,026	9.7	31,176	1,555	526	19.3	304	25.1	3,333	133	45.1
1931	19,459	7,185	26,644	5.3	30,921	1,633	529	18.6	328	28.6	3,499	120	46.8
Central Eastern Region:													
Baltimore & Ohio.....1932	97,325	14,672	111,997	13.7	23,125	1,756	763	30.1	270	15.4	4,809	164	37.4
1931	96,769	15,101	111,870	8.2	23,902	1,838	792	29.6	301	17.6	5,374	157	39.3
Big Four Lines.....1932	21,555	18,144	39,699	17.4	30,361	1,794	837	32.2	416	21.9	5,933	127	46.9
1931	24,610	17,174	41,784	9.9	30,424	1,855	852	30.5	390	21.3	5,839	115	44.5
Central of New Jersey.....1932	17,949	6,193	24,142	13.7	28,494	2,178	1,032	34.8	201	10.6	7,002	139	33.3
1931	17,972	6,356	24,328	12.9	26,381	1,979	892	31.7	197	11.3	6,932	146	37.2
Chicago & Eastern Ill. 1932	6,065	2,048	8,113	17.8	22,216	1,318	591	32.2	429	22.9	3,710	148	36.8
1931	6,055	2,068	8,123	13.3	25,644	1,423	613	29.3	429	24.8	3,709	137	36.5
Elgin, Joliet & Eastern.....1932	9,977	4,171	14,148	10.5	14,895	1,695	816	40.0	123	5.6	3,895	143	24.9
1931	9,570	3,802	13,372	8.4	15,985	1,784	861	39.6	168	7.7	5,033	129	30.1
Long Island.....1932	803	3,157	3,960	1.2	5,535	743	295	31.0	78	4.9	782	324	31.9
1931	785	4,371	5,156	.9	6,076	746	274	28.8	65	4.4	841	371	33.2
Pennsylvania System.....1932	249,919	44,190	294,109	8.9	29,601	2,111	922	29.8	249	14.0	6,951	143	39.2
1931	248,100	45,769	293,869	6.3	29,773	2,149	925	28.8	270	15.6	7,471	139	41.8
Reading 1932	39,276	7,412	46,688	14.5	23,098	1,908	915	36.7	256	12.4	8,218	164	40.0
1931	38,693	8,601	47,294	4.9	22,957	1,886	884	35.0	273	13.8	8,908	153	41.7
Pocahontas Region:													
Chesapeake & Ohio.....1932	45,058	6,688	51,746	1.6	45,703	3,378	1,821	46.7	882	35.1	14,549	89	40.5
1931	49,079	5,830	54,909	1.6	41,068	3,032	1,616	44.9	736	29.8	13,013	88	38.4
Norfolk & Western.....1932	40,445	4,028	44,473	3.1	41,165	2,804	1,500	44.4	600	23.0	12,011	125	40.7
1931	41,773	4,033	45,806	.8	39,703	2,716	1,418	42.8	551	21.8	11,170	123	40.5
Southern Region:													
Atlantic Coast Line.....1932	29,301	5,626	34,927	14.5	18,814	1,046	332	17.4	164	16.1	1,113	123	37.4
1931	28,914	6,657	35,571	6.1	18,607	1,065	332	17.0	181	18.2	1,249	118	40.3
Central of Georgia.....1932	6,869	1,550	8,419	27.2	18,180	1,019	366	19.7	255	19.5	1,128	142	41.6
1931	8,273	1,696	9,969	20.0	19,375	1,120	404	19.8	258	19.9	1,354	136	44.0
Ill. Cent. (inc. Y. & M. V.) 1932	54,203	11,805	66,008	23.4	23,589	1,486	621	29.5	393	23.2	3,901	157	45.5
1931	53,720	11,593	65,313	12.4	24,734	1,554	608	26.9	396	25.2	3,878	143	47.3
Louisville & Nashville.....1932	52,872	5,010	57,882	23.8	20,936	1,401	658	34.0	333	17.3	3,730	158	45.2
1931	53,353	5,754	59,107	15.7	20,779	1,376	632	32.0	324	17.5	3,643	158	46.6
Seaboard Air Line.....1932	15,328	4,202	19,530	12.1	21,424	1,315	439	20.0	325	26.8	1,452	130	52.1
1931	15,654	5,136	20,790	3.9	20,967	1,350	437	19.2	331	28.6	1,544	128	57.0
Southern 1932	55,156	8,550	63,706	15.3	19,200	1,171	433	21.1	225	16.9	2,167	163	35.5
1931	57,868	9,190	67,058	14.0	19,277	1,184	434	20.4	223	17.4	2,245	161	36.7
Northwestern Region:													
Chi. & North Western.....1932	46,969	18,316	65,285	8.4	20,572	1,365	447	20.0	184	14.9	1,419	144	34.9
1931	45,810	17,606	63,416	7.0	20,037	1,363	453	20.0	219	18.3	1,640	148	40.2
Chicago Great Western.....1932	4,699	2,685	7,384	13.1	29,501	1,713	608	22.3	538	41.1	2,714	157	67.6
1931	5,130	3,685	8,815	9.3	31,550	1,907	651	21.2	494	40.1	2,987	137	61.5
Chi., Milw., St. P. & Pac...1932	63,495	12,239	75,734	3.3	22,397	1,455	579	25.6	264	17.2	1,778	143	41.9
1931	64,878	11,987	76,865	2.3	23,101	1,517	580	24.3	287	20.2	1,960	133	45.7
Chi., St. P., Minneap. & Om. 1932	2,261	7,038	9,299	9.3	16,000	1,081	428	24.0	298	19.3	1,617	138	40.9
1931	2,366	8,003	10,369	9.4	16,612	1,092	434	23.7	299	20.0	1,810	135	46.6
Great Northern.....1932	44,498	8,901	53,399	4.4	21,923	1,423	597	25.0	203	12.1	1,286	154	31.2
1931	45,028	8,570	53,598	6.4	22,728	1,571	671	24.8	227	13.5	1,465	153	30.9
Minneap., St. P. & S. St. M. 1932	20,714	2,271	22,985	3.6	15,175	927	376	22.6	177	11.9	935	136	58.9
1931	20,812	2,676	23,488	3.5	16,139	1,035	394	21.1	183	13.8	996	127	55.1
Northern Pacific.....1932	43,751	3,894	47,645	9.6	22,163	1,477	615	24.6	189	11.5	1,408	174	30.6
1931	42,501	4,582	47,083	9.6	22,863	1,540	635	24.0	228	14.3	1,680	165	36.2
Oreg.-Wash. R. R. & Nav..1932	9,041	1,748	10,789	6.7	20,032	1,176	468	22.8	190	12.2	938	171	38.4
1931	8,525	1,994	10,519	4.6	21,315	1,335	556	25.2	259	15.5	1,228	172	42.8
Central Western Region:													
Alton 1932	5,085	4,095	9,180	14.3	24,469	1,213	412	23.2	253	19.7	2,440	144	55.8
1931	10,730	3,289	14,019	26.0	25,045	1,321	475	24.3	211	15.8	2,994	123	55.1
Atch., Top. & S. Fe (incl. P. & S. F.) 1932	68,649	7,972	76,621	10.1	27,188	1,450	459	19.5	240	20.4	1,587	126	46.9
1931	68,961	10,197	79,158	10.1	27,824	1,580	530	20.6	285	22.7	1,942	116	51.2
Chi., Burl. & Quincy.....1932	44,489	11,003	55,492	8.2	23,086	1,355	588	26.4	353	22.5	2,132	142	58.2
1931	46,982	11,413	58,395	6.4	24,242	1,541	669	26.5	390	24.9	2,460	134	56.1
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf)....1932	42,839	8,581	51,420	15.9	20,184	1,226	431	22.1	260	20.5	1,604	167	51.4
1931	42,031	10,163	52,194	10.6	20,971	1,291	458	22.0	291	22.8	1,820	150	51.3
Denver & R. G. Wn. 1932	13,518	3,446	16,964	3.5	21,627	1,602	644	25.2	228	14.8	1,540	191	32.3
1931	13,067	3,731	16,798	4.1	22,083	1,661	678	25.8	291	18.7	1,913	186	38.7
Los Angeles & Salt Lake...1932	4,726	997	5,723	6.7	25,955	1,503	527	20.1	439	34.7	2,031	157	54.6
1931	4,994	1,208	6,202	2.6	25,802	1,551	520	19.9	474	40.6	2,369	148	60.2
Oregon Short Line.....1932	10,847	3,989	14,836	6.7	23,420	1,487	589	24.9	297	19.2	1,793	134	43.4
1931	9,334	5,454	14,788	6.4	25,675	1,643	665	25.7	351	22.0	2,090	128	49.6
Southern Pacific-Pacific Lines 1932	41,271	18,995	60,266	13.0	26,440	1,625	516	19.3	239	20.0	1,621	126	36.2
1931	44,699	21,554	66,253	12.0	25,395	1,676	572	20.7	274	20.9	2,032	125	40.0
Union Pacific.....1932	24,922	7,099	32,021	20.9	37,236	1,762	620	20.6	428	32.4	3,633	132	50.3
1931	24,617	7,555	32,172	8.1	39,736	2,035	721	20.9	529	40.3	4,519	122	55.1
Southwestern Region:													
Gulf, Colo. & S. Fe.....1932	13,572	2,040	15,612	6.6	22,713	1,324	515	23.6	197	13.2	1,581	122	49.2
1931	14,238	1,887	16,125	2.8	22,328	1,376	522	23.0	194	13.7	1,610	118	50.2
Mo.-Kans.-Texas Lines.....1932	10,705	2,978	13,683	4.9	23,736	1,341	471	21.3	379	30.0	1,581	110	49.9
1931	12,024	3,182	15,206	4.9	25,089	1,493	540	21.3	378	28.9	1,753	97	48.3
Missouri Pacific.....1932	27,119	14,619	41,738	14.3	24,801	1,410	517	23.9	428	31.0	2,418	158	62.6
1931	31,446	11,749	43,195	11.5	25,232	1,491	561	23.3	447	31.9	2,609	131	61.0
St. Louis-San Francisco....1932	27,512	4,027	31,539	7.2	19,461	1,134	449	24.6	269	18.0	1,636	160	40.4
1931	28,411	4,770	33,181	3.2	20,078	1,241	470	23.3	275	19.7	1,761	145	41.1
St. Louis Southwestern Lines 1932	4,487	1,670	6,157	12.1	20,852	1,148	377	18.3	381	32.0	1,233	134	49.9
1931	6,014	2,949	8,963	9.5	22,064	1,287	399	19.1	278	25.7	1,312	117	43.8
Texas & New Orleans.....1932	9,445	10,785	20,230	5.7	17,507	1,060	349	19.0	250	20.6	1,102	112	48.1
1931	12,904	10,384	23,288	8.2	18,732	1,217	403	20.8	263	21.9	1,320	109	45.5
Texas & Pacific.....1932	5,782	4,210	9,992	9.2	23,981	1,599	490	20.0	374	34.0	1,920	100	31.1
1931	6,169	3,789	9,958	10.8	22,894	1,508	481	20.3	441	38.2	2,259	98	37.3

NEWS

(*Continued from page 345*)

portant branches of transportation and which is in position to serve as general co-ordinator of the federal policies and activities affecting them. I would not be understood to mean that there should be expansion of government machinery to regulate transportation. On the contrary, I believe this machinery can be largely reduced without detriment to the public interest. While there should doubtless be enlargement of government authority over some types of transportation, it is clear that with regard to others there should be less government interference. There is need to strike a happy balance, to secure genuine co-ordination."

No Agreement on Canadian Wage Reduction

Negotiations between the Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen and Enginemen, Order of Railroad Conductors, Brotherhood of Railroad Trainmen, and Order of Railroad Telegraphers and the Canadian Pacific and Canadian National which have been proceeding in Montreal for the past few days respecting a proposed 20 per cent reduction in basic wage rates, have reached a deadlock. Last week-end the managements notified the general conference committee of the unions involved that "they are unable to accept the representations offered against the proposal." The communication continues "that it is evident the matter must go before a board of conciliation and investigation. An application for that purpose will be made by the companies at once."

The representations of the employees were outlined in a letter to the railways reading in part as follows:

"Divisions and lodges of the engineers, firemen, conductors, trainmen and yardmen, and telegraphers are unanimous in expressing the view that they are unwilling to accede to a further wage reduction while being, as previously indicated to you, agreeable to an agreed extension of the 10 per cent payroll deduction which was in effect from December 1, 1931, up to and including January 31, 1933." The principal reason cited in opposition to the decrease was the failure to maintain wage parity with United States lines, which previously obtained, and the fact that discussion of further reductions in the United States has been postponed until summer.

Under the Industrial Disputes Act, if the question is referred to a board of conciliation, no action can be taken by either side until the board has made its decision public.

Damage to Carfloat in Interchange Service

The Supreme Court of the United States, reversing judgment of the Circuit Court of Appeals, Second Circuit, 57 F. (2d) 144, which reversed judgment of the Federal district court for Southern New York, 52 F. (2d) 691, holds that the New York Central could recover damages from the Long Island for injury to N. Y. C. carfloat No. 37 while moored to a carfloat bridge of the Long Island terminal at Long Island City by collision with L. I. carfloat No. 58, in tow of the tug "Talisman" owned by the Long Island, through the negligence of the "Talisman."

A notice given by the Long Island to the New York Central, some six years earlier, that it would cease being responsible for vessels, including floating equipment, lying at its terminals at Long Island City and Bay Ridge, to which the New York Central did not reply, was held not to relieve the Long Island from liability. As connecting carriers, the court said, each company in the discharge of its duties to the public owed to shippers the duty to deliver to the connecting line for further transportation; and each was correspondingly bound to receive and carry. The Long Island was bound to exercise reasonable care for the safety of the N. Y. C. carfloat while engaged in delivering and receiving. The Long Island could not by its own act relieve itself of any duty imposed upon it by law, or arising out of the nature of its undertaking in respect of the required interchange. It was powerless by mere announcement to fix the terms on which it would participate with the New York Central and other connecting carriers in effecting such interchange. And as the Long Island could not dictate terms, the New York Central was under no obligation to repudiate those proposed, or to reply to the notice.—N. Y. C. v. Tug "Talisman." Decided Feb. 6, 1933. Opinion by Mr. Justice Butler.

New Haven Operating "Economy Special Diner"

The New York, New Haven & Hartford has placed in service an "Economy Special Diner" which is operated each morning on the "Bankers Express" between New Haven, Conn., and New York, and each evening on Train No. 80 from New York to Springfield, Mass. Among this economy diner's innovations is the employment of negresses as waitresses in place of the familiar negro men; other features are the moderate scale of prices and the rigid "no tipping" rule.

The dining car, which is of the club variety with a lounge at one end for smoking, was entirely redecorated and refurnished for the inauguration of the new service. R. L. Pearson, vice-president and general manager, explained that the latest innovation is another step in the efforts of the New Haven to try to find out just what kind of service is most appealing to the passengers.

"We realize," Mr. Pearson said, "with conditions as they are today, that many people feel the necessity of economizing, and so we are trying out this specialized service on these particular trains, in an effort to discover what kind of service will meet the most popular response. We are making it possible for a passenger using the Bankers Express to step into the diner and get coffee and a doughnut for only 15 cents, and he will be made to feel just as much at home and will be just as welcome as the man who eats a hearty breakfast.

"Similarly, on train 80 on the return trip, where we will serve a supper instead of dinner, we are instituting the same modest price scale and the same 'no tip' system. Nineteen of the 28 items on the supper menu, for instance, are 20 cents or less, and the top-priced item is minute sirloin steak with french fried potatoes, at 80 cents."

Historical Bulletin No. 30

The Railway and Locomotive Historical Society (Harvard Business School, Boston) has issued bulletin No. 30 and with it a single index for all of the 30 bulletins thus far issued.

The principal article in the present bulletin is a biographical sketch, by John R. Spears, of John B. Jervis, the distinguished engineer whose name is one of the chief features of interest in the history of the construction of the Erie and the Delaware & Hudson canals and the New York (Croton) Aqueduct.

Jervis, the sketch reveals, was born at Huntington, Long Island, N. Y., in 1795, and died at Rome, N. Y., on January 12, 1885. He began as an uneducated surveyor on the Erie Canal; rose to be superintendent of the Eastern division of the Canal (1824); and was a leader in the construction of the Delaware & Hudson Canal (1825-1829) ending as chief engineer. In this service he spent a week at Quincy, Mass., studying the Granite Railway, the first railroad in America. He was next the chief engineer of the Mohawk & Hudson (1831) where he designed the DeWitt Clinton, the first locomotive with a swiveling truck.

Jervis was chief engineer of the Croton aqueduct for conveying water to New York City (1836-1842) which at that time involved numerous novel engineering problems; and following this he was called to Boston where he took charge of building the Cochituate aqueduct. Next he was chief engineer of the Hudson River Railroad, and then the Michigan Southern & Northern Indiana, both now parts of the New York Central; and later he figured in the construction of the Pittsburgh, Fort Wayne & Chicago, and the Chicago & Rock Island. In these later enterprises he was an economist and manager as well as engineer, having been president at times of some of the companies.

Rock Island Suspends A. T. C. on Iowa Division

The Interstate Commerce Commission, acting on the petition of the Chicago, Rock Island & Pacific, has authorized the temporary suspension of automatic train control—the Regan Safety Devices Company's system—on the Iowa Division, 172 miles, 47 locomotives. This system was placed in service on October 24, 1926, following extensive experience on the Illinois Division, where the Regan system was first put in use in March, 1920.

The falling off in traffic is the main reason for the company's present request. Freight train mileage is 21 per cent less than in 1927, and passenger train mileage 16 per cent less. The officers of the road, in pleading that under present conditions automatic train control is not necessary, state that the line lies through compara-

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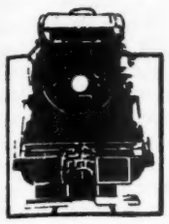
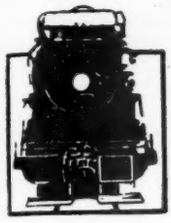
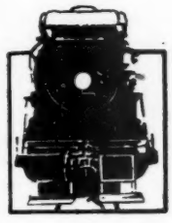
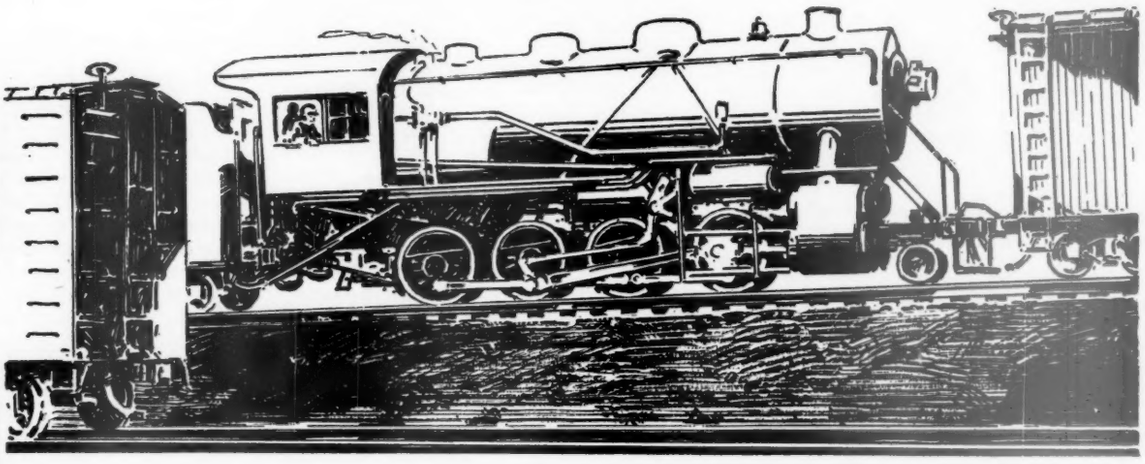
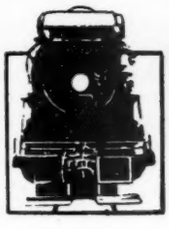


NO OLD ROAD ENGINE CAN EVER BECOME A MODERN SWITCHER

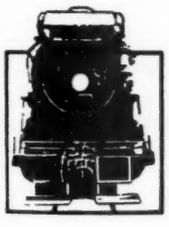




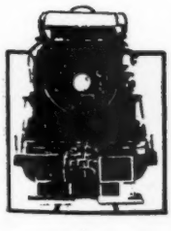




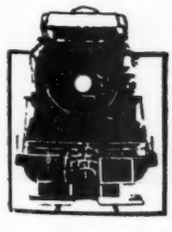
JUST designating an old road engine as a switcher does not make it suitable for switching service. Extensive rebuilding is uneconomical and wasteful since even a rebuilt road engine can't handle the cuts as snappily and as efficiently as modern railroading demands.



Then, too, most old road engines are gluttons for fuel.



Consider that a quarter of all railroad mileage is made by switch engines and the importance of operating only modern locomotives built specifically for switching service becomes apparent.



LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS, Incorporated LIMA, OHIO

tively level country, with good views; the automatic block signal records show few failures, and there are very few collisions. Because of light traffic, many qualified enginemen are serving as firemen and many qualified conductors serving as trainmen, thus doing away with risks incident to the employment of inexperienced men. The enginemen favor the removal of A. T. C. because it imposes what they call unnecessary and burdensome speed restrictions.

Locomotives running over other divisions have their ramp shoes torn off so that repair parts have to be kept at numerous terminals, with qualified maintainers in charge; and because of the lengthened runs of locomotives, equipped engines have to be kept in reserve on the unequipped divisions.

The estimated saving by discontinuance is $29,000 or more annually. The timber portions of the Regan ramps must soon be renewed, at a cost of $10,000; this money would better be spent for other safety measures. The company proposes to remove only such parts of roadway apparatus as is perishable, so that the resumption of service will involve little expense.

In view of the record as set forth, the commission (Division 6) grants the petition; but holds the matter open for such further considerations as may in future be warranted.

Mileage Allowance on Private Refrigerator Cars

A hearing on mileage allowances on private refrigerator cars, I & S 3842, was held at Chicago on February 23 before Examiner William A. Disque of the Interstate Commerce Commission. In this case, the North American Car Corporation protested the reduction proposed by the railroads from two cents per car-mile to one cent per car-mile, and requested that the proposed cut be suspended pending an investigation. Testimony at the hearing concerned the Frigicar, a North American Car Corporation refrigerator car with a mechanical refrigeration unit. The railroads supported the proposed reduction with evidence showing that because the power for the refrigeration unit was supplied by the railroads, the car company was not entitled to a two-cent allowance, while representatives of the car corporation testified to show that the cost of power was offset by a lesser weight hauled.

S. S. Riegel, mechanical engineer of the Delaware, Lackawanna & Western, presented figures which showed that the cost per ton-mile for hauling the excess tare weight of a Frigicar was 1.29 cents, while the cost for the extra power equivalent on the average horsepower consumed was 1.76 cents, the two totaling 3.05 cents. A. L. Conrad, assistant general auditor of the Atchison, Topeka & Santa Fe, presented an exhibit showing the average gross ton-mile cost of hauling ice in bunkers as applied to movements from California, Arizona and New Mexico to the Chicago district, while C. T. Ripley, chief mechanical engineer of the Santa Fe, presented an exhibit showing the power performance of locomotives in freight service on that railroad between different points.

E. C. Wood, assistant to the president of the North American Car Corporation, argued that because the automatic refrigerator car insured the automatic control of refrigeration, held a lower average temperature, furnished dry refrigeration, provided quicker pre-cooling and kept more even temperature in all parts of the car, it was a benefit to the railways and to the public and, therefore, should not have its development penalized by a reduction in the allowance to be made by the road for the use of the car. He also anticipated the development of a lighter car, which will mean less weight for the railroads to haul. He contended that from ½ mill to 1½ mills per ton-mile for power is sufficient to pay the railroads for the additional cost of generating electricity for the apparatus.

Edward C. Schmidt, professor of railway engineering at the University of Illinois, estimated the charge for extra expense entailed by the railroads in hauling Frigicars as amounting to 0.0897 mills per car-mile for the cars now in operation and 0.0403 mills per car-mile for a new design of car now being constructed.

Tennessee Gasoline Tax

The Supreme Court of the United States upholds as valid under the commerce clause and the Fourteenth Amendment, as applied to the Nashville, Chattanooga & St. Louis, the Tennessee gasoline tax law, (Tenn. Public Laws, c. 58 of 1923, as amended by c. 67, 1925), imposing a privilege tax of two cents a gallon on gasoline sold, stored or distributed, or allowed to be withdrawn from storage, whether for sale or other use. Storage and withdrawal from storage, within the state, for use or sale, are the events which call the statute into operation.

The railroad buys large quantities of gasoline outside the state and brings it into the state in tank cars, from which it is unloaded and placed in its own storage tanks. It is all withdrawn and used as a source of motive power in interstate railway operation in Tennessee, Kentucky, Alabama and Georgia. The company assailed the tax as unconstitutional.

The court said that: "The gasoline upon being unloaded and stored ceased to be a subject of transportation in interstate commerce and lost its immunity as such from state taxation. . . . The fact that the oil was, in the ordinary course of appellant's business, later withdrawn from storage for use, some within and some without the state, part of it thus becoming again the subject of interstate transportation, did not affect the power of the state to tax it all before that transportation commenced . . .

"We cannot say that the tax is a forbidden burden on interstate commerce because appellant uses the gasoline, subsequent to the incidence of the tax, as an instrument of interstate commerce . . . The power to tax property, the sum of all the rights and powers incident to ownership, necessarily includes the power to tax its constituent elements. See Bromley v. McCaughn, 280 U. S. 124, 136-138.

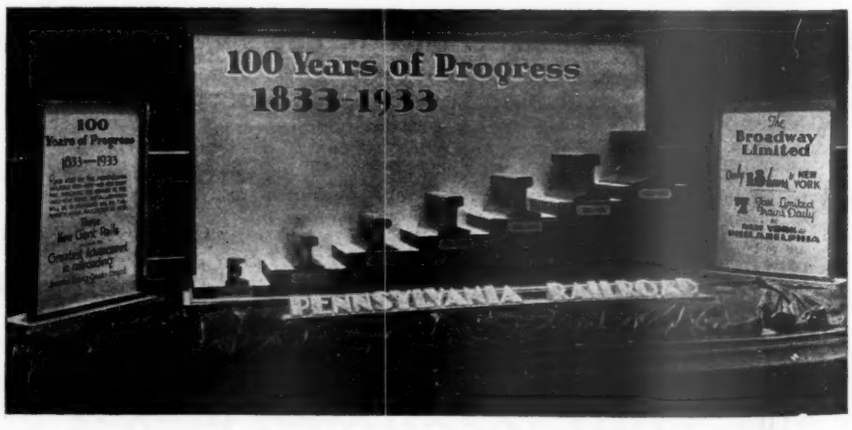
There can be no valid objection to the taxation of the exercise of any right or power incident to appellant's ownership of the gasoline, which falls short of a tax directly imposed on its use in interstate commerce, deemed forbidden in Helson v. Kentucky, 279 U. S. 245. Here the tax is imposed on the successive exercise of two of those powers, the storage and withdrawal from storage of the gasoline. Both powers are completely exercised before use of the gasoline in interstate commerce begins. The tax imposed upon their exercise is, therefore, not one imposed on the use of the gasoline as an instrument of commerce and the burden of it is too indirect and remote from the function of interstate commerce itself to transgress constitutional limitations.

"The allegations of the bill showing that a heavier burden of taxation is imposed upon railroads than upon common carriers by motor bus, examined in the light of the applicable statutes of the state, fall short of alleging a discrimination forbidden by either the commerce clause or the Fourteenth Amendment."

The Tennessee Supreme Court's judgment sustaining the tax was affirmed.—N. C. & St. L. v. Wallace, Comptroller of the Treasury of Tennessee. Decided Feb. 6, 1933. Opinion by Mr. Justice Stone.

A Century of Rail Development

One hundred years of progress, 1833 to 1933, is being depicted by the Pennsylvania in a display of rails at its LaSalle Street ticket office in Chicago. The display includes rails of 40 lb. section, used by the road in 1833; 60 lb. in 1875, 70 lb. in 1884, 85 lb. in 1893, 100 lb. in 1914 and 130 lb. in 1931, in contrast to the 152-lb. rail which will be standard in 1933.



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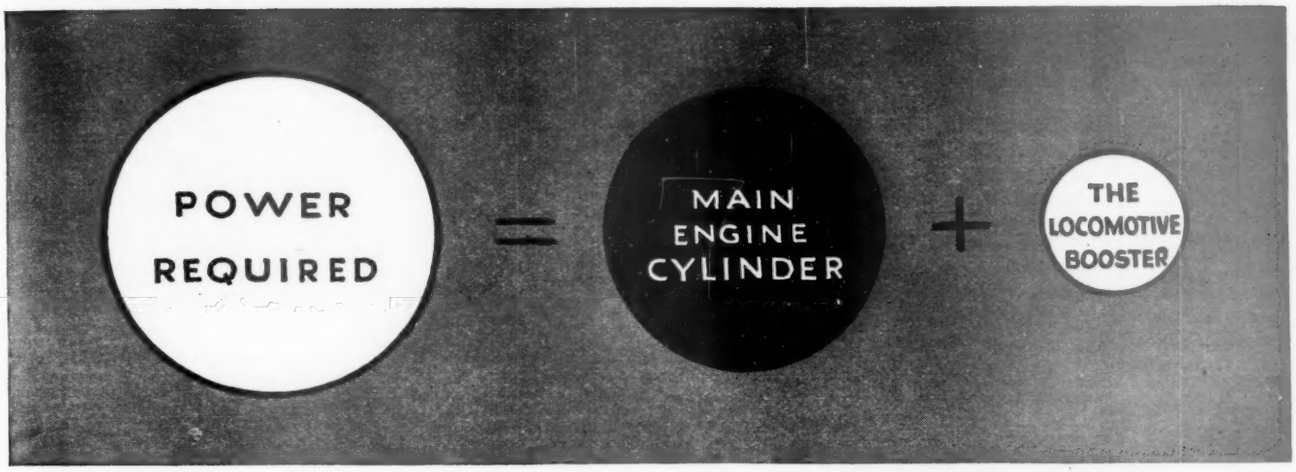
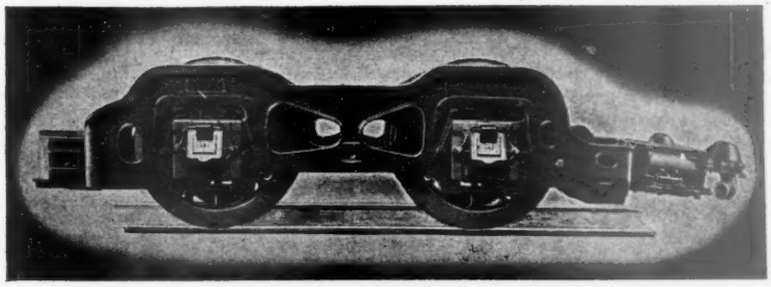
WHY THE LOCOMOTIVE BOOSTER Saves Maintenance



HERE is the cylinder power needed to meet certain conditions of operation. The purpose of the locomotive designer is to secure this power as economically as possible. « He can get it by making the main engine cylinders big enough to give the maximum power required. Or he can get it by a combination of smaller main engine cylinders plus The Locomotive Booster. « But since locomotive maintenance is in proportion to the amount of work done, the combination of The Locomotive Booster and smaller cylinders is the most economical method. « The Locomotive Booster is only used at low speeds when the power demand is greatest. At road speed it cuts out and the smaller main engine cylinders are then ample to haul the load. Since they are smaller, less work is done, consequently locomotive maintenance is lower. « This important economy can only be had by building The Locomotive Booster as an integral part of the new power.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL



Communication Agencies as Seen by Committee on Social Trends

The development of communication agencies in this country during the past third of a century is reviewed in the chapter on "The Agencies of Communication" of the recently-published report of The President's Research Committee on Social Trends. The chapter deals with the growth and social effects of communication in many fields—steam, electric, water and air transportation, motoring, the postal, telegraph, cable, wireless and telephone services, newspapers, periodicals, motion pictures and radio broadcasting.

"The Agencies of Communication" is the work of Dr. Malcolm M. Willey, of the University of Minnesota, and Dr. Stuart A. Rice, of the University of Pennsylvania. The chapter which traces the development of the many phases of communication in the United States, is based on studies made specially for The President's Research Committee on Social Trends.

Commenting on the future of railway transportation in America the authors write: "The railroads were an outstanding influence in economic and social life during the last half of the 19th century. In addition to their economic effects the railroads exerted psychological influences. As the outward world was transformed, the minds of men were reoriented and new horizons established. Communities connected by inferior highways were now joined by ribbons of steel over which locomotives ran with incredible speed. An older isolation disappeared. The railroads wove themselves into the fabric of the nation's culture. They were the dominant agency of communication at the outset of the century. From then on to the end of 1930, however, statistics give striking evidence of changes that were threatening the preeminent position held by the railroads for nearly 100 years."

An important problem of the railroads related to its financial problem, according to the authors, is that of dealing with the new competition from the motor vehicle. They state: "Imperceptibly, but surely, the automobile, and especially the private vehicle, encroached upon the short haul traffic of the railroads. A shift in performance of function has occurred. The problem is now one of integration, for both railway and motor vehicle have become accepted parts of the contemporary social pattern."

Discussing highways and highway utilization, the authors write: "Although travel possibilities hitherto existed in the rail and water systems, their use was subjected to certain restrictions that did not pertain to the automobile. In no considerable degree the rapid popular acceptance of the new vehicle centered in the fact that it gave to the owner a control over his movements that the older agencies denied."

Though scheduled air travel, which had grown from 5,782 passengers in 1926 to 522,345 in 1931, is inconsiderable when compared to railway passenger traffic, its growth "is significant for what it may forecast" in the opinion of the authors. "If air travel continues to grow, as seems likely, it will increasingly become competitive with the railroads for the long-haul business," they remark.

Summing up the social effects wrought by all the various developments outlined in the chapter, the authors observe that "an interconnecting, interconnected web of communication lines has been woven about the individual," transforming "his behavior and his attitudes no less than it has transformed social organization itself."

The President's Research Committee on Social Trends was appointed by President Hoover three years ago to make an appraisal of the nation's changing social life through extensive researches into the shifting social trends of the first third of the Twentieth Century. The Committee's report stresses the long time social problems facing the American people and deals with national policies which will be in the process of formulation and reformulation for years to come.

The Committee comprises: Dr. Wesley C. Mitchell, professor of economics, Columbia University, chairman; Dr. William F. Ogburn, professor of sociology, University of Chicago, director of research; Dr. Charles E. Merriam, professor and chairman of the department of political science, University of Chicago; Dr. Howard W. Odum, director of the Institute for Research in Social Science, University of North Carolina; Dr. Alice Hamilton of the Harvard School of Public Health, Boston; Shelby M. Harrison, general director of the Russell Sage Foundation, New York, and Edward Eyre Hunt, executive secretary.

The investigations were carried on by fifty leading authorities in the various branches of social science. The report consists of twenty-nine chapters, written by the Committee's investigators, a foreword by President Hoover, and a review of the Committee's findings. A grant of funds by the Rockefeller Foundation made the investigations possible.

The subjects considered in the chapter are discussed by the same authors in greater detail in a subsequently-published monograph entitled "Communication Agencies and Social Life." This is one of a series of such monographs which are planned by the Committee in connection with certain of its investigations that "unearthed data which required more extended and detailed treatment than could be accorded within the limits of the Report itself."

The report and the monograph are both published by the McGraw-Hill Book Company, New York, the price of the former (two volumes) being $10 and the latter $2.50.

Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City.

ALLIED RAILWAY SUPPLY ASSOCIATION.—F. W Venton, Crane Company, 836 S. Michigan Ave., Chicago. To meet with Air Brake Association, Car Department Officers' Association, International Railroad Master Blacksmiths' Association, International Railway Fuel Association, International Railway General Foremen's Association, Master Boiler Makers' Association and the Traveling Engineers' Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M. & O. R. R., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Room 800, 1017 Olive St., St. Louis, Mo. Annual meeting, June 13-15, 1933, Cleveland, Ohio.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 Federal St., Chicago.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—(See American Transit Association.).

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.
- Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York.
  - Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.
  - Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York. Next meeting, June 26-27, 1933, Hotel La Salle, Chicago, Ill.
  - Protective Section.—J. C. Caviston, 30 Vesey St., New York. Next meeting, July 12-13, 1933, Stevens Hotel, Chicago, Ill.
  - Safety Section.—J. C. Caviston, 30 Vesey St., New York. Next meeting, October 3-5, 1933, Stevens Hotel, Chicago, Ill.
  - Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York. Annual meeting, June 13-15, 1933, Hotel Stevens, Chicago, Ill.
- Division II.—Transportation.—G. W. Covert, 59 E. Van Buren St., Chicago.
- Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York.
- Division IV.—Engineering.—E. H. Fritch, 59 E. Van Buren St., Chicago. Annual meeting, March 14-15, 1933, Palmer House, Chicago.
  - Construction and Maintenance Section.—E. H. Fritch, 59 E. Van Buren St., Chicago.
  - Electrical Section.—E. H. Fritch, 59 E. Van Buren St., Chicago.
  - Signal Section.—R. H. C. Balliet, 30 Vesey St., New York. Next meeting, May 9-10, 1933, Hotel Roosevelt, New York, N. Y.
- Division V.—Mechanical.—V. R. Hawthorne, 59 E. Van Buren St., Chicago.
  - Equipment Painting Section.—V. R. Hawthorne, 59 E. Van Buren St., Chicago.
- Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York.
- Division VII.—Freight Claims.—Lewis Pilcher, 59 E. Van Buren St., Chicago. Annual meeting, June 6-8, 1933, Brown Hotel, Louisville, Ky.
- Division VIII.—Motor Transport.—George M. Campbell, 30 Vesey St., New York.
- Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—J. A. Senter, Ind. Agt., N. C. & St. L. Ry., Nashville, Tenn. Annual meeting, June, 1933, Kansas City, Mo.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the American Railway Association, Division IV.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 14-15, 1933, Palmer House, Chicago.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Miss E. Kramer, M-K-T Employees Magazine, St. Louis, Mo.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C., M., St. P. & P. R. R., 11402 Calumet Ave., Chicago. Exhibit by Tool Foremen Suppliers' Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Union Trust Building, Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, Ahrens & Richardson, 30 Church St., New York.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1104 Chandler Building, Washington, D. C. Annual meeting, 1934, Houston, Tex.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual meeting, June 21-23, 1933, Hotel Sherman, Chicago.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Station, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

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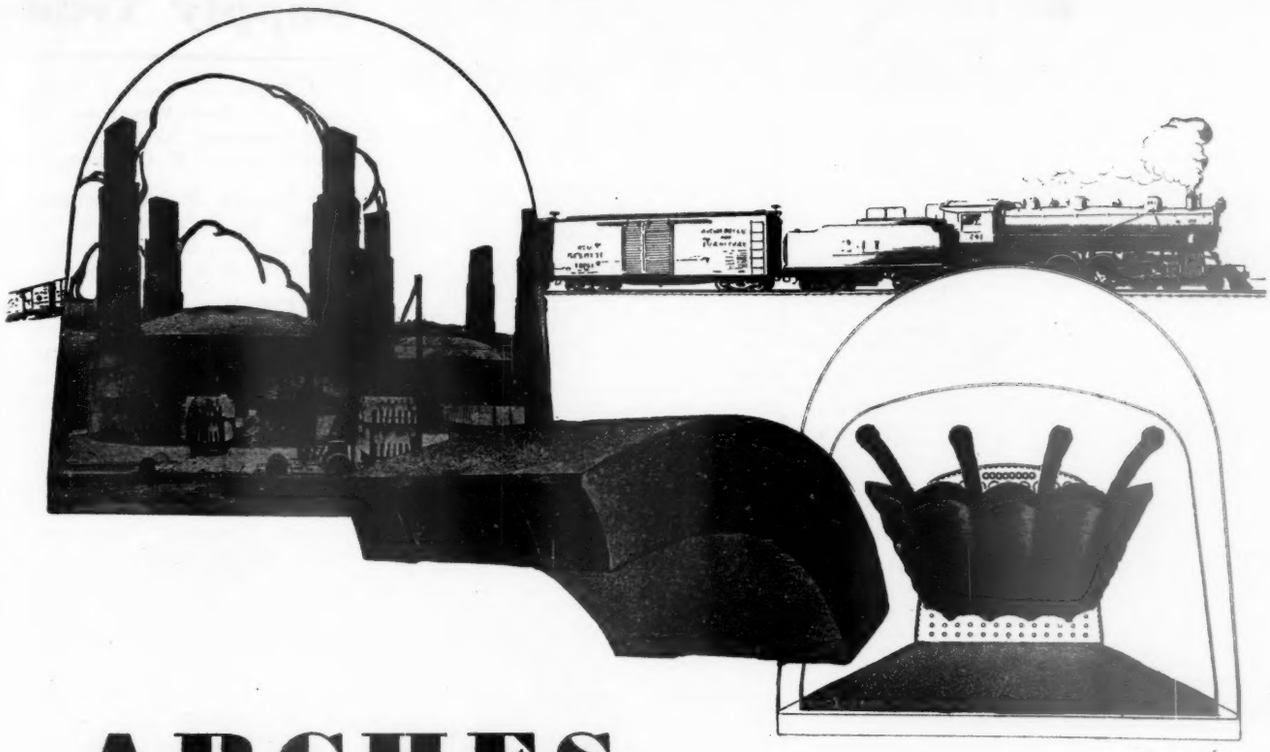

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ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, Transportation Building, Washington, D. C.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—S. A. Baber, High Grade Manufacturing Co., 10418 St. Clair Ave., Cleveland, Ohio. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 S. Morgan St., Chicago.

CAR FOREMAN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago. Regular meetings, second Monday of each month, except June, July and August, Auditorium Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, Room 299, 610 S. Main St., Los Angeles, Cal. Club not active at present time.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—J. F. Brady, Main and Barton Sts., St. Louis, Mo. Operation suspended indefinitely.

CENTRAL RAILWAY CLUB OF BUFFALO.—M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month, except June, July and August, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 2920 Utopia Place, Hyde Park, Cincinnati, Ohio. Operation suspended indefinitely.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Regular meetings second Monday of each month, except June, July and August, Auditorium, Brotherhood of Railroad Trainmen's Building, W. 9th St. and Superior Ave., Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—T. D. Smith, 1660 Old Colony Building, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York. Annual meeting, October 10-13, 1933, Cincinnati, Ohio.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—(See Railway Tie Association.)

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, Suite 322, 910 S. Michigan Ave., Chicago. Annual meeting, March 13, 1933, at above address.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section (see Safety Section, American Railway Association).

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Statler, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York. Regular meetings, third Friday of each month, except June, July and August, 29 W. 39th St., New York.

PACIFIC RAILWAY CLUB.—W. S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, Transportation Building, Washington, D. C.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton (Treas. and Asst. Sec.), First National Bank Building, Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 17-19, 1933.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Meets with Mechanical Division, Purchases and Stores Division, and Motor Transport Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 1252 Syndicate Trust Building, St. Louis, Mo. Annual meeting, May 10-11, 1933, Jefferson Hotel, Richmond, Va.

RAILWAY TREASURY OFFICERS ASSOCIATION.—L. W. Cox, 1428 Broad Street Station Building, Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual meeting, September 19-21, 1933, Hotel Stevens, Chicago, Ill.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Meetings temporarily suspended.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York. Meets with A. R. A., Signal Section.

SOCIETY OF OFFICERS, EASTERN ASSOCIATIONS OF RAILROAD VETERANS.—M. W. Jones, Baltimore & Ohio, Mt. Royal Station, Baltimore, Md. Annual meeting, October 7-8, 1933, Scranton, Pa.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & C. R. R., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A., Division V, Equipment Painting Section.

TOOL FOREMEN SUPPLIERS' ASSOCIATION.—E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago, Ill. Meets with American Railway Tool Foremen's Association.

TORONTO RAILWAY CLUB.—N. A. Walford, P. O. Box 8, Terminal "A," Toronto. Regular meetings, first Friday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., Carbon & Carbide Building, Chicago. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 E. 98th St., Cleveland, Ohio.

WESTERN RAILWAY CLUB.—J. H. Nash, Dri-Steam Valve Sales Corp., 122 S. Michigan Ave., Chicago. Regular meetings, third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago.

Equipment and Supplies

FREIGHT CARS

THE PACIFIC FRUIT EXPRESS has ordered 150 freight car underframes from the Pacific Car & Foundry Company, the fabrication to be done by the Western Pipe & Steel Company.

IRON AND STEEL

THE SOUTHERN PACIFIC has ordered 710 tons of structural steel for two bridges at Surf, Cal., from the American Bridge Company.

THE READING COMPANY has ordered 2,500 tons of steel for a bridge over the Susquehanna river at Rupert, Pa., from the Phoenix Bridge Company.

THE BANGOR & AROOSTOOK has given an order for 1,780 tons of 100-lb. A. R. A. type A rail to the Bethlehem Steel Company and has also placed orders with this company and other manufacturers for the necessary track accessories.

SIGNALING

READING.—This company and the Atlantic City have applied to the Interstate Commerce Commission for authority to dispense with the automatic stop and speed-control features of the automatic train-control installations required by the commission's orders between Jenkintown, Pa., and Bethlehem and between Camden, N. J., and Atlantic City, and to operate locomotives with continuous cab signals and warning whistles.

Supply Trade

C. B. Sipes has been appointed traffic manager of **The Firestone Tire & Rubber Company,** Akron, Ohio, and subsidiaries, to succeed **E. C. Knox,** deceased.

The Waugh Paint Company, St. Louis, Mo., has been organized by **W. D. Waugh,** formerly division manager of the **Detroit Graphite Company,** St. Louis.

The Canadian Concrete Products Company, Ltd., which is affiliated with the **Massey Concrete Products Corporation,** Chicago, has changed its office from the Dominion Square building, Montreal, Quebec, to Belleville, Ontario, address P. O. Box 118.

James A. Cook has been appointed district sales representative of the **Frank Wiedeman Company,** Milwaukee, Wis., to handle the sale of pipe nipples to the railroads of the St. Louis district. Mr. Cook will have his headquarters at Twenty-First street and Southern Railway, East St. Louis, Ill.

The Locomotive Crane Manufacturers' Association has adopted a resolution providing that the members of that association, in order to protect the capital investment represented by their detailed drawings and to provide fairly for the best interests of their customers through efficient repair part service, shall refrain from furnishing to their customers detailed drawings of standardized products except when justified by the needs of an emergency breakdown.

At a meeting of the board of directors of the **American Locomotive Company,** on March 2, the resignation of **William H. Woodin,** who is to be secretary of the treasury in the cabinet of President Roosevelt, was accepted with regret and the position of chairman of the board was abolished. At the same meeting **Charles J. Hardy,** who succeeds Mr. Woodin in the presidency of the American Car & Foundry Company, was elected a director and a member of the executive committee of the American Locomotive Company, to fill vacancies created by Mr. Woodin's retirement. Mr. Woodin also resigned from his official connections with American Locomotive Company subsidiaries.

The board of directors of the **General American Tank Car Corporation,** Chicago, will recommend to stockholders at the annual meeting in April that the name of the company be changed to the **General American Transportation Company** as the former name no longer describes the company's activities. As a private operator of refrigerator and tank cars it now operates a total of about 50,000 cars in North America and provides refrigerator service for a number of railroads and industrial companies. The company also has three subsidiaries in Europe and one Canadian affiliate. It also owns a large public liquid storage terminal at Goodhope, La., near New Orleans. The company maintains manufacturing plants at East Chicago, Ind., and Sharon, Pa., in addition

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That Elesco feed water heaters are a profitable investment can easily be figured by the 12 to 15 per cent reduction in fuel they make possible. Or, for the same fuel consumption, they increase boiler capacity by 15 per cent.

These and other economies and improvement of performance are surprisingly easily obtained through Elesco feed water heaters. *Write for the latest facts.*

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American Steel Foundries

The annual report of the American Steel Foundries for 1932 shows a loss of $1,526,244, as compared with a loss of $791,373 in 1931, and a profit of $2,801,442 in 1930. The surplus account, which, on December 31, 1931, amounted to $10,675,836, was reduced to $8,877,970 as of December 31, 1932, after charging last year's loss of $1,526,244, and dividends amounting to $404,719. Current assets amounted to $11,885,656, while current liabilities amounted to $1,256,585, a ratio of 9.52 to 1.

The consolidated income account, in comparison with 1931, follows:

	1932	1931
Loss from operations, after deducting manufacturing, selling and administrative expense, but before provision for depreciation	$593,492	$8,595*
Add—Depreciation	999,699	978,020†
Loss from Operations	$1,593,191	$969,425
Miscellaneous Income:		
Interest, Discount and Exchange	27,069	33,741
Income from Investments	173,425	301,971
Less—Miscellaneous Net Charges to Income	126,367	146,637
Total	$1,519,064	$780,350
Net Earnings of Subsidiary Company appertaining to Outstanding Minority Stockholdings	7,180	11,023
Loss carried to Earned Surplus	$1,526,244	$791,373

Note: * Profit from operations.
† Deduct.

Superheater Company

Consolidated net earnings of $337,027, after adjustment of minority interests, were reported by the Superheater Company for the year ending December 31, 1932. This figure, which is equivalent to 38¼ cents per share on the 879,849 shares of stock outstanding at the close of last year, compares with 1931 consolidated net earnings of $385,209, or the equivalent of 43½ cents a share on the 884,799 shares outstanding at the close of that year.

Operations in 1932 resulted in a loss of $252,814 as compared with a 1931 profit from operations of $145,132. The 1932 net is, therefore, due entirely to "income from other sources" amounting to $699,623; this other income in 1931 amounted to $1,208,625 but in that year an offsetting loss, amounting to $607,295, from the sale of securities was recorded.

The consolidated statement of earnings for 1932 follows:

Loss from Operations		$252,814
Income from Other Sources:		
Interest and Dividends from Investments, Bank Balances, etc.	$606,383	
Miscellaneous	60,287	
Profit on Sale of Securities	32,953	
	$699,623	
Depreciation	68,240	
Federal and Foreign Income Taxes	47,325	
	$115,565	
Earnings for year 1932	331,243	
Add: Loss applicable to minority interests	5,784	
Net Earnings—After adjustment of minority interests		$337,027

In the Working Capital account which it sets up the report lists current assets of $11,657,453, including $802,410 in cash as against total current liabilities of $346,380.

Baldwin Locomotive Works

The Baldwin Locomotive Works, for the year ending December 31, 1932, reported a consolidated loss of $4,078,132 after a $1,846,022 provision for depreciation, interest charges of $1,136,613 and adjustments for losses accruing to minority stockholders of the Midvale Company and of the Whitcomb Locomotive Company. This compares with a consolidated loss of $4,122,759 for the year ending December 31, 1931.

Consolidated sales for 1932 amounted to $10,596,859 as compared with 1931 sales of $20,436,343; sales of locomotive products were down from a 1931 total of $6,197,036 to $3,034,694 in 1932 when non-locomotive activities accounted for 71 per cent of the total business.

The balance sheet as of December 31 lists total current assets of $16,630,942, including more than $9,000,000 in cash and U. S. treasury notes, as against total current liabilities of $1,236,987. There is, however, listed, also, the company's three-year 5½ per cent gold notes due March 1 in the amount of $12,000,000. Projected plans for meeting this maturity are discussed in the report.

The consolidated statement of profit and loss for the year ending December 31, 1932 follows:

Sales		$10,596,859
Less:		
Cost of Sales, including Selling, Administrative and General Expenses	$12,205,167	
Provision for Depreciation	1,846,022	
		14,051,189
Operating Loss		$3,454,330
Other Income:		
Dividends	$35,486	
Interest and Miscellaneous	637,552	
		673,038
Operating Loss less Other Income		$2,781,292
Other Expenses:		
Interest	$1,136,613	
Miscellaneous	259,534	
		1,396,147
Loss for the Year		$4,177,439
Equity of Minority Stockholders of The Midvale Company and The Whitcomb Locomotive Company		99,307
Loss Accrued to The Baldwin Locomotive Works		$4,078,132

OBITUARY

E. C. Knox, traffic manager for The Firestone Tire & Rubber Company, Akron, Ohio, and subsidiaries, died at his home in Akron, on February 15, at the age of 56. Mr. Knox had been traffic manager for this company for over 23 years.

Thomas A. Beattie, general superintendent of the McKeesport, Pa., works of the National Tube Company, died on February 25 in Montefiore Hospital, Pittsburgh, at the age of 69. Mr. Beattie had been in the service of the National Tube Company for 50 years. He was general manager of the Riverside works in Wheeling, W. Va., from 1900 to 1929, when he was transferred to McKeesport.

Fred Atwater, president of the Columbia Nut & Bolt Company, Inc., Bridgeport, Conn., died on February 21 at Bridgeport Hospital. Mr. Atwater was born 62 years ago at Derby, Conn. He commenced his career with the Bridgeport Malleable Iron Company and in 1902 organized the Columbia Nut & Bolt Company of which he was president at the time of his death. Mr. Atwater had taken an active part in civic affairs having served as mayor of Bridgeport from 1921 to 1923, also as a state senator in Connecticut during 1931 and 1932. He was a director of many corporations and banks, also treasurer of the Howard P. Cook Company, dealers in railroad supplies.

Paul E. Carter, eastern manager at New York of the General Railway Signal Company, Rochester, N. Y., who died of spinal meningitis at the Johns Hopkins Hospital, Baltimore, Md., on February 21, after a long illness, was born at Detroit, Mich., on March 6, 1886. Mr. Carter was graduated from Rensselaer Polytechnic in 1908 and immediately entered the service of the General Railway Signal Company on construction work. He was later transferred to its factory at Rochester, where he was successively employed in the testing, commercial engineering, advertising and engineering departments. During that period, Mr. Carter was employed for nine months in the signal department of the New York Central at Grand Central Terminal, New York. He then returned to the advertising department of the signal company, serving part of the time as assistant editor on the G-R-S Electric Interlocking Handbook issued in 1913. In the same year he was transferred to the New York office as resident engineer in charge of construction work in the eastern district and three years later was appointed sales engineer with the same headquarters. In May, 1917, Mr. Carter enlisted in the officers' training corps and later was sent

Paul E. Carter

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overseas. He returned from France in the summer of 1919 as captain in the Transportation Corps. Shortly after his return he re-entered the employ of the General Railway Signal Company as sales engineer at its New York office and was appointed resident manager, on January 1, 1920. Later he became eastern manager, which position he was holding at the time of his death.

TRADE PUBLICATIONS

TRUSCON STEEL LINER PLATES.—The Truscon Steel Company, Youngstown, Ohio, has published a 28-page booklet which contains engineering data, standard contours, methods of increasing the section modulus, and properties of the various elements of the steel liner plates manufactured by this company. A considerable portion of the booklet is devoted to a pictorial description of projects in which these plates have been used successfully.

ENDURO STAINLESS STEEL.—The Republic Steel Corporation, Youngstown, Ohio, has issued a 14-page attractively-illustrated booklet describing the various architectural applications of Enduro stainless steel. Fabrication and properties of this material, together with a list of the shapes and finishes available, are other points covered.

Construction

CHICAGO, ROCK ISLAND & PACIFIC.—The Rock Island, Arkansas & Louisiana has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a two-mile extension, to be operated by the C. R. I. & P., in Evangeline Parish, La.

NEW YORK CENTRAL.—This road has awarded a contract to the George J. Atwell Foundation Corporation, New York, for building, in connection with the West Side Improvement, the viaduct foundation from Little West Twelfth street to West Eighteenth street on private right-of-way west of Tenth avenue, New York City.

ROCK ISLAND, ARKANSAS & LOUISIANA. —See Chicago, Rock Island & Pacific.

THE GERMAN RAILROADS' CALENDAR.—"Deutscher Reichsbahn Kalender," has just been issued for the seventh year. With more than 150 illustrations and as many brief articles, the 1933 calendar deals with the policies and accomplishments of the German unified railroad system in its endeavor to give travelers and shippers the best possible service through its personnel and modern and efficient railroad equipment and methods of operation. The illustrations cover a variety of subjects, ranging from the new stream-lined passenger car and the Rheingold Express to the way in which a platform porter is expected to respond to a passenger's inquiry. This wall calendar devotes three pages to each week, each page containing a different picture.

Financial

CHESAPEAKE & OHIO.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a portion of its Potts Creek branch, in Alleghany county, Va., 16.84 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*R. F. C. Loan.*—Division 4 of the Interstate Commerce Commission on February 28 approved a loan of $3,718,000 to this company from the Reconstruction Finance Corporation to meet principal and interest on equipment trusts and interest on mortgage bonds due March 1 and April 1.

DELAWARE & HUDSON.—*Tentative Recapture Report.*—Division I of the Interstate Commerce Commission has issued a tentative recapture report accompanied by an order directing this company to pay to the commission $2,162,731 as representing one-half its excess income as tentatively determined for the years 1921, 1924, and 1926, unless a protest is filed by April 5. The determination of excess income is based on a finding of value ranging from $134,600,000 as of 1920 to $119,600,000 as of 1927.

DULUTH & IRON RANGE.—*Proposed Recapture Report.*—The Interstate Commerce Commission has made public a proposed recapture report by Examiner Charles O. Fowler finding that this company earned $1,349,610 excess income for the ten-months period in 1920 following the return of the railroads from federal control, of which one-half would be recapturable, but that it did not receive any excess income in 1921, 1922, and 1923.

GALVESTON, HOUSTON & HENDERSON.—*R. F. C. Loan.*—This company has amended its application for a loan from the Reconstruction Finance Corporation by reducing the amount asked from $2,122,000 to $1,061,000, for the purpose of paying one-half of a bond issue due April 1.

GREAT NORTHERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Monarch, Mont., to Neihart, 13.18 miles.

HARTFORD EASTERN.—*Abandonment.*—Examiner O. P. Howard of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of the entire line from Hartford, Wash., to Monte Cristo, 42 miles.

LOUISVILLE & NASHVILLE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a branch line from Prattville Junction, Ala., to Pratt, 10 miles.

MINNEAPOLIS & ST. LOUIS—*R. F. C. Loan.*—A loan of $1,076,594 to the receiver from the Reconstruction Finance Corporation was approved by Division 4 of the Interstate Commerce Commission on February 25, to be applied to the payment of vouchers, taxes, and principal and interest on equipment trust obligations. The commission last year approved a loan of $2,698,630 but it was not authorized by the Finance Corporation and the commission has now cancelled its certificate.

MISSOURI PACIFIC.—*R. F. C. Loan.*—Division 4 of the Interstate Commerce Commission on February 28 approved an additional loan of $2,234,000 to this company from the Reconstruction Finance Corporation, on its application for $5,221,191, principally for interest payments. The commission had previously approved loans amounting to $20,900,000, of which $20,100,000 had been advanced by the corporation.

NEW YORK, CHICAGO & ST. LOUIS.—*C. & O. Officers Authorized to Serve.*—The Interstate Commerce Commission has authorized F. M. Whitaker and George D. Brooke, vice-presidents of the Chesapeake & Ohio, to hold positions also with the New York, Chicago & St. Louis and they have been elected to similar positions. The commission had previously authorized J. J. Bernet, president of the Chesapeake & Ohio, to serve also as president of the Nickel Plate.

ST. LOUIS-SAN FRANCISCO.—*R. F. C. Loan.*—A loan of $3,000,000 to the receivers from the Reconstruction Finance Corporation was approved on February 25 by Division 4 of the Interstate Commerce Commission for a term of two years, to be applied to the payment of taxes, reimbursement of the treasury for taxes already paid by the receivers, and payment of maturing equipment—trust obligations and interest thereon. The company had received three loans aggregating $7,995,175, of which $2,805,175 had been repaid by the Railroad Credit Corporation, but the receivers are not eligible to borrow from the R. C. C. The loan to the receivers is approved on condition that they should pledge as security receivers' certificates in principal amount equal to the aggregate of the loans, including those to the company, and possessing a lien upon the income and assets in the possession of the receivers superior to the lien of the prior-lien and consolidated mortgages of the Frisco and to the refunding mortgage of the Kansas City, Fort Scott & Memphis. This is with a provision that the collateral now lodged with the corporation should be released to the receivers. Commissioner Brainerd, concurring, objected to the requirement that priority be given to the loans made to the railway company.

YAZOO & MISSISSIPPI VALLEY.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Hammond, La., to Covington, 20.94 miles.

Average Prices of Stocks and of Bonds

	Feb. 28	Last week	Last year
Average price of 20 representative railway stocks..	22.68	24.07	30.71
Average price of 20 representative railway bonds..	53.66	55.99	70.21

Dividends Declared

Bangor & Aroostook.—Common, 50c, quarterly; Preferred, 1¾ per cent, quarterly, both payable April 1 to holders of record February 28.

Continued on next left-hand page

Canadian Pacific.—Common and Preferred dividend action deferred.

Cincinnati Union Terminal.—5 Per Cent Preferred, 1¼ per cent, quarterly, payable April 1 to holders of record March 22.

Chesapeake & Ohio.—Common, 62½c, quarterly, payable April 1 to holders of record March 8; Preferred, $3.25, semi-annually, payable July 1 to holders of record June 8.

Dayton & Michigan.—87½c, semi-annually, payable April 1 to holders of record March 16; 8 Per Cent Preferred, $1.00, quarterly, payable April 4 to holders of record March 16.

Reading Company.—Second Preferred, $.50, quarterly, payable April 13 to holders of record March 23.

Railway Officers

EXECUTIVE

Walter F. Brown, postmaster-general in President Hoover's cabinet, has been elected chairman of the board and a director of the Hudson & Manhattan, effective March 15. **Carl S. Klumpp,** general manager of the company, has been elected president and a director and will continue as chief operating officer, succeeding the late **Charles D. Emmons. P. Compton Miller,** real estate agent, has been elected vice-president, in charge of real estate.

Mr. Brown was born at Massillon, Ohio, on May 31, 1869, and received his education at Harvard University, receiving his A.B. degree in 1892. After studying law at Harvard Law School, 1893-94, he practiced law with his father at Toledo, Ohio, until 1905. Mr. Brown was a member of the firm of Brown, Hahn & Sanger from 1905 to 1927. From 1921 to 1924 he was chairman of the Congressional Joint Committee on Reorganization, representing the President. He was assistant secretary of commerce from November 2, 1927, to March 4, 1929, after which date he became postmaster-general.

FINANCIAL, LEGAL AND ACCOUNTING

The legal departments of the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha have been consolidated and **W. T. Faricy,** general solicitor of the Omaha, with headquarters at St. Paul, Minn., has had his jurisdiction extended to include the North Western. He will have his headquarters at Chicago. As noted in the *Railway Age* of February 25, **Samuel H. Cady,** general solicitor of the North Western, has been elected vice-president and general counsel.

Albert A. Drummond, auditor of freight receipts of the New York, New Haven & Hartford, has been appointed auditor of revenue in charge of freight and passenger revenue accounting and overcharge claims. The positions of auditor of freight receipts and auditor of passenger receipts have been abolished. Mr. Drummond entered railroad service in 1907 in the transportation department, serving as freight clerk, telegrapher and agent. In 1915 he was transferred to the accounting department, starting as assistant traveling auditor and advanced through positions of traveling auditor, special accountant, assistant auditor of freight receipts and auditor of freight receipts, the position he held until his recent appointment.

OPERATING

Lowell White, general superintendent telegraph, mail and express traffic of the Atlantic Coast Line, has been appointed general superintendent of telegraph and mail traffic, and **E. C. Garrabrant,** superintendent of mail and express traffic has been appointed manager of express traffic. Both will have headquarters at Wilmington, N. C., as before.

A. J. Witchel, chief engineer of the Spokane, Portland & Seattle, with headquarters at Portland, Ore., has been appointed assistant superintendent and secretary, and the position of chief engineer has been abolished. Mr. Witchel's appointment follows the announcement by the Great Northern and the Northern Pacific, owners of the S. P. & S., of a plan for joint operation of the subsidiary company by the managements of the parent companies.

TRAFFIC

H. J. Nelson, general eastern and foreign freight agent of the Central of New Jersey, has been appointed general freight agent in charge of service and solicitation, including off line agencies, with headquarters at New York. **Edward Keil,** assistant foreign freight agent, has been appointed general eastern and foreign freight agent, succeeding Mr. Nelson. The position of assistant freight traffic manager has been abolished.

ENGINEERING AND SIGNALING

R. J. Middleton, assistant chief engineer of the Western Lines of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Seattle, Wash., has been appointed to the newly-created position of assistant chief engineer of the system, with headquarters at Chicago. **A. G. Holt,** assistant chief engineer of the Eastern Lines, has been appointed to the newly-created position of assistant to chief engineer, with headquarters as before at Chicago. The positions of assistant chief engineer of the Eastern and Western Lines have been abolished.

Otto Gersbach, chief engineer of the Chicago River & Indiana and the Indiana Harbor Belt (both units of the New York Central Lines) with headquarters at Chicago, has had his jurisdiction extended to include the Western division of the New York Central and the West division of the Michigan Central. **F. J. Jerome,** division engineer of the Western division of the New York Central, at Chicago, has had his jurisdiction extended to include the West division of the Michigan Central, the Chicago River & Indiana and the Indiana Harbor Belt and will have charge of maintenance in these territories.

The position of principal assistant engineer of the Delaware, Lackawanna & Western, held by the late **A. J. Neafie,** has been abolished. **M. H. Doughty,** division engineer at Hoboken, N. J., has been appointed engineer of maintenance of way, with the same headquarters. **L. L. Tallyn,** division engineer at Scranton, Pa., has been transferred to Hoboken, N. J., as division engineer with jurisdiction over all territory in Pennsylvania and New Jersey. Mr. Tallyn's former position has been abolished. **D. R. Young,** division engineer, with headquarters at Buffalo, N. Y., will have jurisdiction over all territory in New York state.

James E. Beatty, who has been appointed engineer, maintenance of way, Eastern Lines of the Canadian Pacific, entered the service of the C. P. R. in May, 1904, as transit man at London, Ont., and in August of the same year was appointed resident engineer on construction with the Quelph and Goderich Railway. In October, 1908, he was appointed assistant engineer at Schreiber, being promoted resident engineer there in May, 1910. In February, 1911, he was appointed assistant engineer of construction, Eastern Lines, C. P. R., and in August, 1913, divisional engineer. In 1915 he was district engineer at St. John, N. B., and also in the same capacity in the general superintendent's office at Montreal. In January, 1916, Mr. Beatty was appointed district engineer of the Quebec district, the position he held until his recent appointment.

MECHANICAL

E. M. Wilson, master car builder of the Indiana Harbor Belt, the Chicago River & Indiana and the Chicago Terminal division of the Michigan Central (all units of the New York Central Lines) with headquarters at Gibson, Ind., has been appointed also to the same position on the Western division of the New York Central and the West division of the Michigan Central, with headquarters at Chicago.

W. W. Bates has been appointed assistant master mechanic of the Milwaukee terminal and District No. 1 of the Milwaukee division of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Milwaukee, Wis., succeeding **A. M. Martinson,** who has been transferred to the Hastings & Dakota division, with headquarters at Aberdeen, S. D. Mr. Martinson succeeds **G. E. Passage,** who has been appointed trainmaster and traveling engineer with headquarters at Terre Haute, Ind.

OBITUARY

Samuel A. Seely, division engineer on the Pennsylvania division of the New York Central, at Jersey Shore, Pa., died on February 26, in the Marcy Hospital at Oshkosh, Wis., where he had gone for special treatment.

P. M. Newman, president of the Susquehanna & New York, the Clarion River and the Tionesta Valley, with headquarters at Williamsport, Pa., died at his home at Pennsdale, Pa., on February 15.